C-1/2- H04598-129 -P015388

THE
ANNALS

of The American Academy *of* Political
and Social Science

MAY
1955

INCORPORATED
APRIL 4TH.
1891

CALCUTTA UNIVERSITY
CENTRAL LIBRARY

Air Power and National Security

* * *

Book Reviews of new literature in the field of the
social sciences

A book [illegible] promise of our American economic system

America's Needs and Resources

A NEW SURVEY

A Twentieth Century Fund study by J. Frederic Dewhurst and Associates

The original America's Needs and Resources, published in 1947 was called by Time "A monumental report on the U. S. economy . . . probably the most comprehensive ever made on the subject," and speedily achieved the "nationwide attention" *Business Week* predicted for it.

Now this new survey brings up to date, in comprehensive figures, the vast panorama of our past achievements, assesses our present strength, and provides an extremely well informed look at our future potential to 1960

With major focus on the postwar boom, the long-range outlook of the economy, and the significance for the future of our expanding economy, this new volume gives [illegible] attention to such new factors as technological changes [illegible] and [illegible] American productivity and the economy as a whole

The present volume is completely revised and rewritten and expanded by nearly fifty per cent. The result is a richer, sounder book and reference work that will prove invaluable to every businessman and student — economist, sociologist, political scientist — anyone interested in America's economic strength and economic future.

More than 1100 pages . 352 tables 105 charts and figures

At your bookstore or from

THE TWENTIETH CENTURY FUND [illegible]

CONTENTS

Wants and Attitudes
Trends and Projections
Population Growth
Consumption and [illegible]
Food, Liquor and Tobacco
Clothing, Accessories and Personal Care
Housing
Household Operation
Transportation
Health and Medical Care
Recreation · Education
Religion · Welfare
Private Productive Facilities
Urban Redevelopment
Land and Water Conservation and Development
Government Expenditures
Foreign Trade and Finance
The Labor Force
Natural Resources
[illegible] Capacity
Industrial and Commercial Capacity
Technology · Productivity
Needs vs. Resources

Indicated $10.00

[illegible]

VOLUME 299

MAY 1955

THE ANNALS

of The American Academy *of* Political
and Social Science

THORSTEN SELLIN, *Editor*
RICHARD D. LAMBERT, *Assistant Editor*

CALCUTTA UNIVERSITY
CENTRAL LIBRARY.

391
[illegible]

AIR POWER AND NATIONAL SECURITY

Edited by

ROBERT STRAUSZ-HUPÉ, Ph D
Director, Foreign Policy
Research Institute and
Professor of Political Science
University of Pennsylvania
Philadelphia, Pennsylvania

STEFAN T. POSSONY, Ph.D.
Visiting Professor, Foreign Policy
Research Institute
University of Pennsylvania
Professor of International Politics
Graduate School, Georgetown University
Washington, D. C.

Copyright 1955, by
THE AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE
All rights reserved

PHILADELPHIA
1955

CONTENTS

PAGE

FOREWORD vii

THE DEFINITION OF AIR POWER

The Geography of the Air — *Stefan T. Possony* and *Leslie Rosenzweig* 1

Some Fallacies Concerning Air Power — *Eugene M. Emme* 12

The Scope of United States Air Strategy — *Thomas D. White* 25

NATIONS AS AIR POWERS

Air Strength of the United States — *Elton C Fay* 30

The Foundations of Soviet Air Power: A Historical and Managerial Interpretation — *Ramsay D. Potts, Jr* 38

A Steel Ring for the Iron Curtain: An Appraisal of Air Power in Other Nations — *Edward W. S. Hull* 49

CURRENT PROBLEMS OF SECURITY

The Psychological Impact of Air Power — *Lewis S. Thompson* 58

Obstacles to the Development of American Air Power — *W. Barton Leach* 67

Air Power and Foreign Policy, Especially in the Far East — *Thomas K. Finletter* 76

Collective Security in the Air Age — *Robert D. Murphy* 87

Europe and Air Power — *Raymond Aron* 95

The Role of NATO's Air Forces — *Alvin J. Cottrell* 102

Air Power in the Modern Middle East — *Paul M. A Linebarger* 109

FUTURE PROBLEMS AFFECTING SECURITY

Strategic Concepts for the Nuclear Age — *T. F. Walkowicz* 118

Dropping the Pilot — *Donald T. Perkins* 128

Aviation and International Co-operation — *Robert Strausz-Hupé* 134

REPORT OF THE BOARD OF DIRECTORS OF THE ACADEMY FOR 1954 141

BOOK DEPARTMENT

PAGE

BROWN, DELMAR. *Nationalism in Japan.* Albert E. Kane 191

BRYSON, LYMAN. *The Drive Toward Reason.* Dorothy Rudy . . . 168

COLE, CHARLES C., JR. *The Social Ideas of the Northern Evangelists, 1826–1860.* Albert Post 178

COOK, THOMAS I., and MALCOLM MOOS. *Power Through Purpose: The Realism of Idealism as a Basis for Foreign Policy.* Richard W. Van Alstyne . 148

CRAWFORD, KENNETH GRANT. *Canadian Municipal Government.* Maurice W. Armstrong . . 180

CRESAP, DEAN. *Party Politics in the Golden State.* Dean E. McHenry 159

DIXON, W. MACNEILE. *The Human Situation.* Henry Nelson Wieman . 175

Documents on the Expulsion of the Sudeten Germans Carl G. Anthon 183

DRAGNICH, ALEX N. *Tito's Promised Land: Yugoslavia.* Joseph S. Roucek 184

DUROSELLE, JEAN-BAPTISTE and others. *Les relations Germano-Soviétiques de 1933 à 1939.* Harry R. Rudin 150

FRANKEL, S. J., and R. C. PRATT. *Municipal Labour Relations in Canada.* Maurice W. Armstrong 180

FREE EUROPE PRESS. The Research Staff. *Satellite Agriculture in Crisis.* Ernest F. Winter . . 184

FREYMOND, JACQUES. *De Roosevelt à Eisenhower.* Oliver Benson 147

FULLER, J. F. C. *A Military History of the Western World.* A. E. R. Boak 151

GIPSON, LAWRENCE HENRY. *The Coming of the Revolution, 1763–1775* Clinton Rossiter . 156

GLOVER, J. D. *The Attack on Big Business.* Robert A. Brady .. 164

GOLDBLOOM, MAURICE J. *American Security and Freedom.* Rubin Gotesky 162

GROSSER, ALFRED and others. *Administration et politique en Allemagne occidentale.* Henry L. Bretton . . . 187

HABER, WILLIAM and others *Manpower in the United States.* Selig Perlman 172

HALLE, LOUIS J. *Civilization and Foreign Policy.* Lawrence H. Chamberlain 146

HANSON, EARL PARKER. *Transformation: The Story of Modern Puerto Rico* Otto Tod Mallery . 193

HARRIGAN, ANTHONY (Ed.). *The Editor and the Republic, Papers and Addresses of William Watts Ball.* Frederic E. Merwin . . 157

HEATH, MILTON SYDNEY. *Constructive Liberalism.* George B. Tindall 159

HENRY, ANDREW F., and JAMES F. SHORT, JR. *Suicide and Homicide.* Austin L. Porterfield . . 169

HORGAN, PAUL. *Great River: The Rio Grande in North American History.* Vols. I–II. George C. Osborn 152

PAGE

International Bank for Reconstruction and Development, 1946–1953, The. Raymond Vernon 167

JACOBS, CLYDE E. *Law Writers and the Courts.* Robert J. Harris . 161

JONES, GEORGE HILTON. *The Main Stream of Jacobitism.* Norman Victor Hope 179

JONES, THOMAS. *A Diary with Letters, 1931–1950.* R. G. Cowherd . 178

KAPS, JOHANNES (Ed.). *The Tragedy of Silesia, 1945–1946.* Carl G. Anthon 183

KELLY, ALFRED H. (Ed.). *American Foreign Policy and American Democracy.* Louis J. Halle 147

KOCHAN, LIONEL. *Acton on History.* Crane Brinton 176

KULSKI, W. W. *The Soviet Regime.* Frederick L. Schuman 182

LAUTERBACH, ALBERT. *Man, Motives, and Money.* George Soule 166

LEISS, AMELIA C., and RAYMOND DENNETT (Eds.). *European Peace Treaties After World War II.* Gerhart Niemeyer 152

LOCKWOOD, WILLIAM W. *The Economic Development of Japan.* Allan B. Cole 190

LORENZ, LINCOLN. *The Admiral and the Empress: John Paul Jones and Catherine the Great.* Sidney Harcave 157

LORWIN, VAL R. *The French Labor Movement.* W. Henry Cooke 186

MCREYNOLDS, EDWIN C. *Oklahoma: A History of the Sooner State.* Frederick D. Kershner, Jr. 160

MARSHALL, MARTIN V. *Automatic Merchandising.* Theodore N. Beckman . . 164

MORGAN, ROBERT J. *A Whig Embattled: The Presidency Under John Tyler.* Charles M. Thomas . . 154

MUELLER, KATE H. *Educating Women for a Changing World.* Althea K. Hottel 174

Nation Looks at Its Resources, The. J. Russell Whitaker 165

PARNES, HERBERT. *Research on Labor Mobility.* Carroll R. Daugherty 171

PARSONS, E. A. *The Alexandrian Library.* Morton S. Enslin 176

PLAMENATZ, JOHN. *German Marxism and Russian Communism.* Thomas I. Cook . 181

PROTHERO, JAMES W. *Dollar Decade: Business Ideas in the 1920's.* Broadus Mitchell 163

RANDALL, CLARENCE B. *A Foreign Economic Policy for the United States.* William C. Hawkins 166

ROBINSON, EDGAR EUGENE. *The Roosevelt Leadership, 1933–1945.* Louis B. Wehle 153

ROSTOW, W. W., and others. *The Prospects for Communist China.* Paul M. A. Linebarger . . 188

RUSSELL, LORD OF LIVERPOOL. *The Scourge of the Swastika.* Boris Erich Nelson 187

PAGE

SHANAHAN, WILLIAM O. *German Protestants Face the Social Question.* Conrad H. Moehlman 177

SHAW, FREDERICK. *The History of the New York City Legislature.* Wallace S. Sayre 158

SHEPS, CECIL G., and EUGENE E. TAYLOR. *Needed Research in Health and Medical Care.* Charles A. Metzner . 170

SOSNOVY, TIMOTHY. *The Housing Problem in the Soviet Union.* Harold C. Hinton 182

SUN, E-TU ZEN. *Chinese Railways and British Interests, 1898–1911.* Charles F. Remer . . . 189

TAFT, PHILIP. *The Structure and Government of Labor Unions.* Herbert J. Lahne . . 172

TEN BROEK, JACOBUS, EDWARD N. BARNHART, and FLOYD W. MATSON. *Prejudice, War, and the Constitution.* Donald P. Kent . 169

TOYNBEE, ARNOLD J. *A Study of History.* Vols. VII–X. Pitirim A Sorokin 144

WARD, BARBARA. *Faith and Freedom* Helmut Kuhn 174

WHITAKER, ARTHUR P. *The Western Hemisphere Idea.* J. Fred Rippy 149

WHITE, LEONARD D. *The Jacksonians: A Study of Administrative History, 1829–1861.* Ralph Adams Brown 155

WILGUS, A. CURTIS (Ed.). *The Caribbean: Its Economy.* Harvey S. Perloff 192

WILLIAMS, PHILIP. *Politics in Post-War France.* Johannes Mattern 185

WRIGHT, QUINCY, and others. *Research for Peace.* Frank M. Russell 150

ZORNOW, WILLIAM FRANK. *Lincoln and the Party Divided* Frank L. Owsley 153

CORRECTION 194

LETTERS TO THE EDITOR . 194

OTHER BOOKS 195

INDEX 201

The articles appearing in THE ANNALS are indexed in the *Reader's Guide to Periodical Literature* and the *Industrial Arts Index.*

FOREWORD

Inevitably, in an atomic age, nuclear air power must be the sword and shield of freedom. By the same token, no aggressor can hope to conquer free society without a well-rounded atomic air capability as his primary strength. Nuclear air power thus has become the most portentous single fact of modern life, pregnant with evil and good. Without American air power, postwar Europe might have fallen an easy prey to Communism. Without this same power it would have been difficult, if not impossible, to forge the system of alliances uniting most of the world's peaceful and democratic nations. Atomic air power has given the free world a true and trusted defense.

But even more significant: Long-range air power has put an end to geographic inaccessibility. The remote bases needed to prepare, secretly, for destructive surprise attacks no longer are inviolate against retaliation. Henceforth the heartland is nearly as exposed as the periphery. With the express purpose of keeping a new military holocaust at bay, the American nuclear force for years has been pointed at the very core of incipient aggression. The free world's plan is to continue to employ American and British nuclear superiority as the chief deterrent to cataclysmic folly.

Whether nuclear air power will succeed in giving the world what it never possessed before, an effective tool for the prevention of war, depends on the presumptive aggressor's rationality. If he thinks reasonably, he will realize that he cannot defeat the United States except through a dislocating and disruptive nuclear attack and that he has little chance of forestalling even more devastating counterblows. However costly an atomic war would be to the free world and the United States, it would also spell disaster for Communism.

Aviation is far broader than air power. Just as military aeronautics could destroy the fruits of a million years of human effort, civil aeronautics might join a fractured world into a more co-operative society. The ability to fly for purposes of commerce, travel, recreation, research, health, and production is one of mankind's greatest current values. Once fully developed—and we are very far from aerotechnical maturity—aviation may modify profoundly our present urban structure and thus reduce our vulnerability to atomic weapons. As a commercial endeavor of many facets it is contributing to the transformation which society is presently undergoing. Air transport is helping in the development of backward areas. It has allowed a dramatic intensification of trade and travel and thus an ever wider distribution of hard currency throughout the world. As a result, it holds promise of making economic protectionism increasingly difficult. Psychologically, aviation is putting an end to national isolation and self-centeredness. Aeronautics, a tool of peace as well as of warfare, is thus one of the most creative forces of modern civilization.

Thus far scholars have given only limited attention to the problems of modern aviation. The failure of political scientists to deal more directly with the changes wrought in political relationships by the development of flying poses grave questions. Could it be that we are paying a penalty for leaving the life and death problems confronting modern statecraft in the hands of men who are not governed by judgment acquired through the scientific method? Could it be that the political scientists have been scientific about all problems except defense and war? Could it be that political scientists have been overlooking one of the most promising methods of increasing co-operation among nations? The fact remains that the meaning of aviation has not yet been fully grasped by governments, military commanders, business leaders, scholars, or nations. They are frightened by the military threat, but remain unaware of the peace potential of aeronautics. Never before has a vital problem been so neglected and so blanketed by emotion, misinformation, muddledheadedness, ignorance, and plain apathy.

This issue of THE ANNALS is designed to illuminate the nature of air power and nuclear weapons and to bring out some of their impacts on modern civilization. Of the four sections into which the discussion is divided, the initial two address themselves to the problem of defining air power and assessing the relative strengths of nations in the air, with primary emphasis on the United States and the Soviet Union. The last two sections deal with current and future security problems created by air power. While most of these articles analyze defense within the American frame of reference, one discusses European attitudes toward air power and security.

Some of the important questions considered are: Has United States foreign policy in recent years placed undue reliance on atomic weapons, to the exclusion of other instruments of policy? Does the fear of atomic warfare in overseas countries reduce the effectiveness of the Western alliance system? How is it possible that the Soviet Union, an industrially backward country, should now be in possession of modern aerial weapons systems? Is there such a thing as a nuclear stalemate, and what would be the strategic implications for the United States of such a stalemate, should one occur? Is it really true that nuclear weapons can be used in only one manner, namely through "strategic bombardment," and that they necessarily must put at risk the survival of entire nations and continents?

Fifty years after its birth, aviation is still in a formative stage. Within the next generation enormous changes are likely to occur: nuclear propulsion with its unlimited range; rocket propulsion with its high-altitude and high-speed capabilities; a reduction of transport costs to the present level of cheap surface transportation or below; a lesser dependence on large airfields; aerial suburban communications; and perhaps mankind's first advances into space and, therewith, probably the most disruptive event of human history—the establishment of a link with the universe.

It is impossible to cover in one issue of THE ANNALS the total spectrum of these numerous problems. Our hope is that this issue will induce scholars to devote more attention to a development which should never have been ignored. The study of aeronautics is no less important than the study of diplomacy, politics, international law, or trade; in fact, it is indispensable if we are to get a full understanding of international relations. Let us become familiar with aviation and learn how to impress this extraordinary force into the service of defense, prosperity, and human progress.

ROBERT STRAUSZ-HUPÉ

The Geography of the Air

By Stefan T. Possony and Leslie Rosenzweig

STRATEGY and international politics are influenced strongly by geography. Since modern strategy, to a large extent, concerns itself with aviation, and since strategy and foreign policies are intimately interwoven, the study of aerial geography becomes a necessary step in the analysis of international relations. Aerial geography is as yet an infant science, and the political implications of its findings are far from clear. Yet the time has come for political scientists to take a look at that invisible sea in which we live, the air.

The term "geography of the air" is a linguistic misnomer for something which might more properly be designated by such words as "atmography," "pneumography" or even "aerography." But since the term "geography" has assumed a clear meaning in the English language irrespective of its etymological origins, it is thought best to retain it. The geography of the air, then, is the study of the physical differences of the air in various locations and altitudes. More specifically, it is the study of those differences which are most significant in regard to flying, and it attempts to bring out the implications which those differences have as regards human activities in the air.

CONVENTIONAL FACTORS

Naturally, many conventional geographical factors have aeronautical significance. Flying is influenced by conditions on the ground which include weather on airfields—fog frequency, wind intensity and direction, and temperatures; elevation of airfields (the higher the elevation, the longer the runway required); hardness of soil or of other surfaces such as snow and ice; topographical characteristics of airfield surroundings; the logistical and transport systems of airfields; topographical factors facilitating or impeding navigation; and electromagnetic anomalies interfering with the functioning of instruments. In terms of human geography, flying is influenced by such factors as population densities, availability of skilled manpower, trade relations, surface transportation systems, purchasing power, the availability or absence of navigational "airways," industrial potentials, and by a host of cultural, political, and military factors. Finally, flying itself can be the subject of a geographic analysis: How much flying is done in a particular country? What types of aircraft are being used? How are the flying activities organized? What are the production and maintenance systems? For what purposes are the planes kept in the air? How does flying influence the structure of a given society and its economy? And so on.

WINDS AND AIR MASS MOVEMENTS

Winds used to be objects of conventional "surface" analysis, but this has ceased to be true. Customarily, statements on wind directions have referred to winds on the ground and in the lower altitudes. Yet wind directions change with changing altitudes. It is important to get a clear understanding of "prevailing" and actual winds at *all* important altitudes and to keep close and constant checks on winds at all currently usable altitudes. For example, at 20,000 feet, there may be a westerly, at 30,000 feet a northerly, and at 40,000 feet an easterly wind, all different winds occurring at the same time—although admittedly such a radical diversification by height may be rare.

Recently we have gone beyond the study of "winds" and have become interested in the movements of the atmosphere as a whole. The entire mass of the atmosphere carried by the earth weighs approximately 5 x 10^{15} tons, less than one one-millionth of the earth's weight. Each square meter of the earth's surface carries ten tons of atmospheric pressure. Yet this entire mass of air is constantly in flux. Winds and other weather phenomena appear to be governed by these gigantic air movements, which, according to theory, are caused by two primary forces, the rotation of the earth and the sun's radiation. The surrounding atmosphere is heated by the sun and spun around by the earth. As a result, the atmosphere moves from west to east in the Northern Hemisphere and from the southeast to the northwest in the Southern Hemisphere, while the hot air over the equator and the tropics flows partly to the poles and partly to the middle latitudes; at lower altitudes, cold polar air flows toward the temperature zones. These warm and cool masses meet at about 40 degrees latitude and form the vast unstable weather zone which is continually shifting according to the region and the time of the year. Within this zone, there are areas where certain types of weather occur with frequency and regularity. Many air routes have characteristic weather patterns.

An important example of the significance for aviation of air-mass collisions is the so-called jet streams, which reach velocities of up to 300 miles per hour. Jet streams have been discovered, at altitudes from 30,000 to 47,000 feet, in an area between 40 and 50 degrees north latitude; in winter they have been found at 25 to 35 degrees north. These seasonal fluctuations seem to follow a cyclic rhythm. It is not known whether the oscillations of the jet streams create weather patterns on the earth or simply reflect them. Once the nature of the jet streams is understood, it should become possible to use the extraordinary energy which they represent and, at least on some routes and at some times, increase flying speeds considerably.

There is a good possibility that a third basic air movement may be of importance. This movement is the aerial parallel to the ocean tides, and like them is caused by solar-lunar attraction. Existence of this movement has been deduced from the fact that the pressure on the earth's surface changes periodically on a twelve- and twenty-four-hour cycle. This could be the case only if the atmosphere expanded and contracted cyclically—if it were "breathing" in consonance with the changing positions of the sun. The magnitude of the semidiurnal change is so great, however, that it must be influenced by the effects on the atmosphere's temperature by the sun's radiation acting ***in addition*** to the tidal forces.

Air movements, moreover, are influenced by terrain features. Everywhere in the world, mountain ranges have their aerial replicas in the form of gigantic up and down draft envelopes. On the "prevailing" windward side of the mountains there is an updraft, and on the leeward a downdraft. The rising air cools, and as a result the air cascades down like a torrent, frequently at a speed of approximately 4,000 feet per minute. As the air hits the base of the mountains, it bounces off and rises again, five to ten miles away from the mountain wall, in a tremendous vertical updraft, forming a standing wave, which sometimes reaches altitudes of 60,000 feet or more. Glider pilots use this type of air crest to gain and hold altitude.

The strategic importance of wind patterns is very great. Suffice it to point out a parallel to the days of sailing vessels when windward positions conferred great military advantages: those in this position could sail to the enemy but the enemy found it difficult to attack their base. Similarly in the air age, the belligerent who has to buck prevailing head winds to reach his targets (and pass through highly turbulent areas) is at a disadvantage, especially if his opponent is able to utilize jet streams.

THE ATMOSPHERE

The discovery that there was such a thing as air was made comparatively recently, although the phenomenon of wind, of course, must have been known to the first generation of men. The Greeks talked about air (*pneuma*) as one of the basic elements and attempted to describe its characteristics. Useful knowledge of the air has been accumulated, however, only since the eighteenth century.

The fact that the chemical composition of the air is variable was suspected by Priestley and established in 1846 by Bunsen. We know that in higher latitudes the nitrogen content of the air is greater than at the equator, that oxygen content rises slightly with the latitude, and that water vapor goes down as we move from the equator to the poles. The air contains more "impurities" over land than over water, and considerably more over industrial cities than over rural areas. It is possible that the distribution of chemicals within the atmosphere is influenced by gravitation; for example, it is believed that at higher altitudes the helium content increases considerably while the argon diminishes. We are, however, as yet unsure of the frequency at various altitudes of hydrogen and ozone.

SPHERES

Biologists are interested in the atmosphere because it contains the oxygen which man can use freely without assistance from instruments. The lower half of the troposphere, the narrow zone that sets the stage for life on our planet, has been termed the physiological atmosphere or ecosphere. Depending on physical fitness and habitation, the hypoxic zone of the ecosphere starts at about 13,000 feet. At that point the decrease of oxygen pressure begins to have strong psychophysiological effects upon man. At this point too, aircraft engines begin to require supercharging. The anoxia zone has been established at approximately 52,000 feet, where man loses consciousness almost instantly upon exposure. This is the approximate altitude beyond which, in spite of the occurrence of free molecular oxygen in the atmosphere, oxygen no longer enters the lungs; instead water vapor and carbon dioxide fill the respiratory system. Above 52,000 feet molecular oxygen begins to vanish from the atmosphere. In so far as noninstrumented and unprotected man flying in nonpressurized cabins is concerned, the 52,000-feet line must be considered the rim of space.

With increasing altitude, the characteristics of the air change in practically all respects. Starting from the surface and proceeding upward, the lowest portion of the atmosphere is called the troposphere. This is the "weather zone" of cloud cover, precipitation, and turbulence. In it temperatures fall rapidly till we reach the upper limit of the troposphere, the tropopause, which, in the middle latitudes, is situated at about 33,000 feet, but at the poles is as low as 20,000 feet and over the equator as high as 50,000 feet. Immediately above is the stratosphere, rising to about 66,000 feet. Within the stratosphere temperatures probably remain constant. Above is the ozonosphere, which extends upwards to 115,000 feet.

In terms of temperature, it has been suggested calling the zone above the stratosphere, which is characterized by sinking temperatures, the mesosphere; in it the low temperature of − 117° F. is reached at about 225,000 feet. The zone above the mesosphere has been named the thermosphere. It begins at about 330,000 feet and reaches to 1,320,000 feet and above, hitting a temperature maximum of 4,118° F. at that point. It has been conjectured that, as at lower altitudes, temperature differences cause turbulence, but whether this will be the case in a near vacuum remains to be seen.

At 400,000 to 450,000 feet, the distance between air molecules becomes as great as the length of the sound wave. This is the acoustical frontier of the atmosphere beyond which there is no sound, no sound barrier, and hence no speed which can be meaningfully expressed in Mach numbers.

The exosphere is the area where the atmosphere reaches interplanetary space. In it air particles which have collided with other particles often bounce outward; sometimes they are recaptured by gravity but sometimes they escape into the universe. The exosphere begins approximately at an altitude of 2,000,000 feet but may reach as high as 10,000,000 feet, roughly 2,000 miles.

High-altitude rockets already have reached the periphery of "space." The next significant border will be crossed where, with given speeds of flying machines, the earth's gravitation can be counterbalanced in an altitude where friction no longer impedes movement. Naturally, beyond this area there must come a zone where a flying machine would leave the gravitational field of the earth and enter "space" in the proper sense of the word, subsequently reaching the gravitational field of another celestial body. In fact, the gravitational influences of the moon may become noticeable relatively soon; after all, they make themselves felt on the earth itself. At the halfway mark between earth and moon, the attraction of the moon would be approximately eighty times less than that of the earth. The next "boundary" would be defined by the so-called "abaric point," where the gravitational pull from the moon equals that of the earth. This point is located at approximately 24,000 miles from the center of the moon and over 200,000 miles from the earth, and it is there that we shall have found the true terminus of our planet.[1]

LAYERS

In the higher altitudes, there occur the phenomena of molecular splitting and ionization. Nitrogen, which is the major constituent of the atmosphere, is split into single atoms and becomes a quite different kind of gas at 400,000 feet. Nitrogen, however, is largely an inert substance and although changing in form, is not expected to have any notable effect on high altitude flights. More important is that fact that oxygen, the two-atom type which man breathes, is being split in half by very short-wave ultraviolet rays. One half joins the two-atom molecule to form the three-atom molecule ozone which is poisonous to man; the other half of the oxygen remains free. These single oxygen atoms are highly corrosive and extremely active, and thus may have some effects on high altitude flights. There are, therefore, two "poison layers": the ozone layer, which occurs between 65,000 and 115,000 feet, and the layer of atomic oxygen, which is most prevalent around 350,000 feet.

The ionosphere, which lies above the stratosphere—like the ozonosphere, the mesosphere, and the thermosphere—is subdivided into the D, E_1, E_2, F_1, F_2, and G layers. The D ionized stratum reflects long-wave signals at approximately 180,000 feet. The E layer extends from 225,000 feet to 330,000 feet, reflecting medium radio waves below 3 megacycles (wave length of 100 m). The E layer has been subdivided into the E_1 and E_2 zones. The E_1, or lower layer, exists all the time, while the E_2 layer appears only in daytime, at the higher altitude. The F stratum hovers during the day at approximately 980,000 feet and is termed F_2. During the night the F_2 stratum descends to about 825,000 feet and then is called the F_1 layer. The F layers reflect short-wave emissions.[2] Initial observations have been made about a G layer situated above the F_2.

---

[1] The gravitational influences of the sun will make themselves felt during the entire trip to the moon.

As might have been expected, these ionization phenomena produce difficulties of instrumentation. Long-wave broadcasting is dependent on the D layer, standard wave on the E, and short-wave on the F layer. Radar, television, and frequency modulation broadcasting waves are not reflected by these "walls" of ions but pass through them into space. The various layers, however, often act concurrently and may cause double or triple signal reflections. Signals, moreover, are subject to deflections. In addition to the question of accuracy and dependability, the problem of instrumentation at altitude falls into four distinct parts: communications between two vehicles or tactical employment of instruments from one vehicle against another, both flying within the same electronic "layer"; communications or tactical employment from one vehicle against another which is flying in a different "layer"; utilization of equipment from vehicles at high altitudes against the earth's surface; and employment of electronic equipment from the earth's surface against the high altitude vehicle. It is possible that the functioning of equipment will depend upon four sets of circumstances: on the constant electromagnetic characteristics within the various layers; on variable changes such as electromagnetic "storms"; on the geographic location of electronic equipment on the ground (or aloft in low altitudes); and on the power outputs of the various transmitters, which, particularly in so far as ground equipment is concerned, must be considerable.

In the upper regions electronic communications of all beams and wave lengths will be subjected to electromagnetic diffusion, solar interference, ionization reflections, aurora effects, and cosmic radiation, all of which pose obstacles that must be overcome before man can navigate, communicate, and operate successfully in the upper atmosphere.

At present the power outputs of very high- and ultra high-frequency transmitters are between 8 and 12 watts. Such outputs are satisfactory up to 25,000 to 35,000 feet. At higher altitudes far more power is required to neutralize the various types of interference. To overcome the initial barriers which appear at approximately the 35,000-foot level, power outputs must be squared. To break through the additional obstacles at still higher altitudes and to transmit reliably over growing altitude ranges, ever more substantial power outputs will be needed. Presumably these outputs must continue to rise as flights reach increasingly greater heights. Hence a vehicle at 500,000 feet may need communications equipment with kilowatt instead of watt power. Naturally this will pose considerable weight problems.

LIGHT, RADIATION, AND METEORS

Visibility changes with altitude. Higher above the ground the day lasts longer; at some times of the year and down to given latitudes, the sun does not set at altitude, like the midnight sun of the arctic. In daylight, as we ascend, there is always clear visibility above the tropopause but as we approach the 40,000-foot area, the color of the light changes, turning first into eerie blue and then into violet. Auroras—visible particles in the sun's radiation—make their appearance. Above 100,000 feet, there is "eternal darkness," a very somber pitch-black darkness with no visibility, yet in the daytime the surface of the earth should be plainly visible from that altitude, except for clouds. Needless to add, these light conditions will require adjustments on the part of the flying personnel.

---

[2] The E and F layers also are known as the Kennelly-Heaviside layer.

The problems of vision increase with speed. At 300 knots per hour the pilot will have flown from 1,000 to 5,000 feet before he can complete his perception and start muscular action in response to a sight stimulus. Another 1,800 feet would be traversed before his movements are completed. At higher speeds these time delays become more critical. This problem is significant, since high altitudes can be reached only through very great speeds.

As to radiation hazards, it is not believed that in flights of relatively short duration (that is, several hours), ultraviolet and soft X rays would endanger human effectiveness and health. Reasonable wall thickness should provide adequate protection against all likely radiation dangers. However, there may be in the upper atmosphere other forms of radiation which have not yet been ascertained and which may be harmful.

Meteors constitute another threat to flight safety in high altitudes. It was found that below altitudes of 260,000 to 330,000 feet, the blanket effect of the atmosphere reduces the hazard of collisions with meteors to negligible amounts, even for prolonged flights lasting several months. At altitudes between 330,000 and 390,000 feet the probability of collision increases to 1 part per 1,000 per day. The probability may well be in error by a factor of 10 or more in either direction. It is likely that up to these altitudes flights of less than twenty-four hours' duration could be made with little danger from meteors. Engineering could take care of most of these meteoric threats. The danger from meteoritic collision might become serious, however, if prolonged excursions, lasting months or years, at altitudes greater than, say, 400,000 feet, were to be undertaken. Concerning the validity of such estimates based on "averages," it must be remembered that the frequency of meteors is greater on some orbits than on others, and that this frequency varies with the year's season. Moreover, the effective impact of the meteors is dependent upon the direction in which they approach the earth: it is far greater in case of "collision" than in case of "overtaking." It may be, therefore, that there are regions in the air which, at least during certain times, the traveler had better avoid, similar to the inhospitable areas on the earth—the deserts, tundras, icecaps, and the jungles in the rainy season.

LIFE IN THE CABIN

Flight in lower altitudes is possible without protective equipment. At somewhat higher altitudes, oxygen masks and pressurized cabins become necessary, to be followed at even higher altitudes by pressurized suits: at an altitude of about 60,000 feet, blood would be boiling.

At higher altitudes, the atmosphere becomes so thin that for all practical purposes, there is no air left. However, the requirement for air within the cabin remains. At altitudes below approximately 70,000 feet this requirement can be satisfied relatively easily by pressurizing outside air But pressurization becomes increasingly difficult because, as the air gets thinner, it would require ever larger power outputs and because the extreme pressure ratios would result in excessively hot temperatures. There also is the potential danger of excess ozone concentration in air compressed at very high altitudes. This triple difficulty probably must be solved by taking the required air along in the vehicle; but, obviously, the vehicle must then be built in such a manner that escape of the air will be prevented—not a mean task for future engineers.

Assuming that a hermetically closed cabin can be constructed, the additional problem will emerge that human exhalations like carbon dioxide, methane, and hydrogen sulphide must be eliminated. In their historical dive in the bathyscaphe—a hermetically closed cabin—Auguste and Jacques Piccard used chemicals to absorb the poisonous gases. In future, however, more effective solutions will be required. According to some German authorities, the "gas exchange" problem might be solved through the utilization of botanical plants (e.g., *Alga Chlorella*). As in open nature, these plants would produce oxygen and at the same time dispose of the dangerous substances.[3] The practical difficulties of carrying along a sufficiently gas-productive "garden" should be obvious.

Lack of outside air will influence the temperature within the cabin. High speeds in a relatively dense atmosphere will heat the vehicle's skin, and normal heat transfer will tend to overheat the inside temperature. To prevent such overheating artificial refrigeration of the conventional type will be needed; it should be usable to about 60,000 feet. At higher altitudes, the vacuum will preclude heat transfer. Thus heat will not flow by itself into the cabin, nor will it be distributed evenly there. Moreover, the vehicle no longer will be heated by friction but by radiation.

With increasing altitudes gravity will be correspondingly reduced. Lack of gravitation may change human metabolism and thus the thermal regime of the human body. It also may modify man's movements, perceptions, activities, psychological balance, and general effectiveness. There is a distinct possibility that machinery will be needed to produce artificial gravitation, for example by substituting rotary for the downward pulls. Thus, composite oxygen production and gas exchange, ventilation, refrigeration and heat, and possibly artificial gravitation systems will become necessary. These requirements will pose extremely difficult technological problems, not the least of which will be the necessity of reducing these various "life systems" in weight, so that they can be carried aloft.

ENGINES

The usability of engines changes with altitude. Piston engines can fly only at relatively low altitudes and give their best performances at a few thousand feet. In order to fly at high altitudes aircraft using air-breathing power plants must operate at supersonic speeds, not only to provide sufficient lift but also to obtain adequate thrust. Because the thinner atmosphere offers less resistance (while still providing adequate amounts of oxygen), turboprops, turbojets, and ramjets, which lose range at low altitudes, perform best in the 20,000 to 45,000 feet zone, and presumably somewhat above. Yet at some distance higher up, there is not enough oxygen for any of these engines to operate. At an altitude of 100,000 feet, for example, the required speed for ramjets may be as high as 5 Machs, which means that the incoming air would have a stagnation temperature of about 2,000° F.

---

[3] H. Strughold, "Weltraumaequivalente Bedingungen innerhalb der Erdatmosphaere," *Weltraumfahrt,* January 1955.

Since energy must be imparted through this air at even ***higher*** temperatures, the heat limitations of materials and fuel may rule out the use of air-breathing power plants for high-altitude and speed flying. Rocket vehicles which carry their own oxygen may reach higher altitudes. Presumably they might fly as high as 265,000 feet and ultimately reach speeds of 14,000 miles per hour (or 3½ times faster than rocket speeds attained heretofore). Throughout the altitude band of 100,000 to 500,000 feet, however, flights with propulsion systems that can be envisaged at present will be of short duration, an hour or so, probably less time than is required for one revolution around the earth. The development of nuclear engines, naturally, may solve the high-altitude range problem; but since nuclear engines may be very heavy and since they may provide only low thrusts (though prolonged acceleration), composite engine systems may become necessary: for example, rockets to get the vehicles to altitude, atomic engines to provide extended cruise capabilities, and possibly a third set of engines to allow controlled landings.

NONPOWERED FLIGHT

The difficulty of long-range operations at high altitudes will make it desirable to investigate the possibilities of nonpowered flight. Such flight is predicated on the neutralization of gravity. Under static conditions, that is, if we should put a body on a tower erected over one of the poles, the earth's attraction would be reduced to one-hundredth at an altitude of about 190,000 feet. Absence of static gravity, it is assumed, would be encountered only far in space. However, movement can neutralize gravitational pull at lower altitudes. The faster the movement, the greater the reduction of gravity. A moving body would continue to move if its inertia were not overcome by friction. If there is no friction, the movement continues indefinitely. In the air, friction is produced by the collision of the moving body with the atmospheric particles. Yet above 600,000 feet the atmosphere has thinned out to such an extent that it no longer creates friction. Above this "mechanical boundary of the atmosphere," to use an expression by Heinz Haber, various types of nonpowered flights might become feasible. Naturally, the courses of vehicles on such flights must be "inertial" or stable. They could not have the ubiquity capability of aircraft, but like railroads or ships on an inland lake would be restricted to preset courses—aerial rails, so to speak. It would be another handicap of such vehicles that deflective pulls (resulting, for example, from the lunar-solar tidal forces) as well as navigational errors and changes of course would require the application of power. Hence while nonpowered flying should serve to lengthen range and flight duration, it will be possible only during the intervals between the setting and the correction of course.

NAVIGATION

The determination of location by pilot and instruments within the high-altitude vehicle, or by instruments from the ground, is partly influenced by electronic complications caused by the various ionized layers mentioned before. Furthermore, determination of location is made difficult by the distances which militate against the precision of the instruments. Suppose we want to determine whether a vehicle is over point *A* or *B*, the distance between those points on the ground being 415 miles. If *A′* and *B′* (the points directly over *A* and *B*) are at 50,000 feet, their distance at altitude is 416; at 500,000 feet, however, their distance has grown to 425 miles This change in distance may make it "easy" to establish from the ground the precise position of a vehicle but must make it very difficult from the air. The speed of high altitude vehicles is bound to complicate this problem further. Naturally, this does not imply that navigation must be inaccurate at high altitudes. Suitable navigational systems can be adopted, for example, celestial navigation. The point to remember is simply that the stars which will be visible will be dependent on the vehicle's geographic location and that high-altitude flight requires a space or astronomical—and no longer a terrestrial—field of reference.

Two other points must be considered:

1. In order to reach really high altitudes, rocket propulsion is necessary. Rockets cannot rise except along a unidirectional curve, that is, they cannot go up in a spiral. Hence during ascent as well as during descent, they will have to cover many thousands of miles (in terms of ground distance) and may have to go halfway or fully around the globe. Moreover, it is quite probable that the navigational controls—and possibly most other controls—of such flights will have to be done from ground stations. If so, many high-altitude flights will require a network of control stations which must be strung around large portions of the globe, if not the entire globe.

We should add that, in high-altitude flight, it may not be meaningful to describe a position as just a point in space; it may be necessary to talk about a position which is being passed at a given speed in a given direction. Otherwise it will be impossible, in view of the speeds of high-altitude flying, to correct course, among other reasons because it will be necessary to execute maneuvers in such a way that g forces will not become too powerful. Correction of course will have to be undertaken in a very wide area, along circles with radii of many hundreds of miles, and it will not be possible to complete them before a considerable distance has been traveled. It follows that it will often not be possible to set navigational errors right without flying into areas situated above foreign territory.

2. In cases of vertical take-offs for really high altitudes, the movement of the earth itself becomes a factor. Suppose the vehicle rises over *A* and does not alter its course. Hence after a lapse of time it may find itself "over" a point *B* located hundreds of miles distant from *A*. In many cases *A* will be in another country than *B*. In present-day flying, we assume the earth to be a fixed point of reference; the location of the vehicle is determined in relation to "immovable" places on the globe.[4] In high altitude flight, we will have to deal with *two* moving bodies, the earth and the vehicle; the "location" of a vehicle on a "vertical" course, except for its altitude, will be dependent on the movement of the earth.

POLITICAL AND INTERNATIONAL IMPLICATIONS

Now the question arises as to what all this means with respect to political and strategic problems. The first point to remember is that the race is on for ever higher altitudes, although in the minds of military planners this race may be subsidiary to the race for greater speeds. The point is that speed and altitude are interrelated: to gain greater speeds, one must reach higher altitudes, and to attain higher altitudes one must travel at greater speeds. The air force which can reach and operate at higher altitudes and speeds will gain very considerable military advantages, including greater safety from counter-action. The master of speed and altitude will dominate the battle area and will be far along the road to air, and hence global, dominion. In the near future, military power will have to be applied in the 50,000 to 100,000 foot zone. This will be the area where the next really important breakthrough of aviation will have to take place, and this breakthrough probably will be quite difficult.

---

[4] Long-range ballistic and conventional navigational calculations, however, always must be corrected for the Coriolis effect which is caused by the earth's rotation.

AIR BOUNDARIES

If we posit, then, that a race for altitude and speed is under way, other interesting complications arise. In the period of land warfare, nations when negotiating about frontiers used to compete stubbornly for so-called "commanding heights"—elevations which permitted a good look into the neighbor's land. The "observation frontier" has now been placed in the air. How high can one fly without affecting the relative military capabilities of one's neighbors through the conquest of altitude above one's own territory? Paradoxically, the quest for security drives men into altitude, but the advance into altitude contracts distances on the ground and eliminates safety zones.

We have seen that in order to reach very high altitudes, ascent and descent trajectories of thousands of miles and widely dispersed ground control nets may be necessary. In some cases, therefore, altitude flights cannot be made "over" one country alone; the vehicle must fly over foreign territory—and rely on control stations in foreign countries—or it never will attain altitude. If it is to be prohibited from using foreign "air space," high-altitude flying would not be practical.

But the question is: Where does a nation's air space or air sovereignty end? At what altitude are we in no man's air or in no man's space? Do we have "open air" like the "open seas," and where? It would be preposterous to claim sovereignty over the air where air no longer exists. As a carrying and oxygen-feeding medium air ends somewhere in the 50,000 to 100,000 foot zone, yet in infinitesimal traces, air reaches up to tremendous heights. The discussion has shown that the upper atmosphere can be subdivided into multiple "layers" and "spheres" and that by about 700,000 feet, most, if not all, of the conditions of "space" prevail. The future of flying is dependent, in part at least, on the freedom of flight in higher altitudes. But what should be the criteria for drawing upper boundaries? It is apparent that simple line frontiers cannot be delineated in the air.

In terrestrial geography we have been accustomed to distinguish between plains and mountains, brooks and creeks, navigable rivers, canals, lakes, seas and oceans. We know that for each of these surfaces (which undergo seasonal changes) different means of transportation are necessary. Similarly, the atmosphere and the adjoining space can be subdivided into distinct parts. Each of these "aerial" zones requires different vehicles and instruments, just as the river requires a rowboat or a ferry and the ocean seagoing ships. The various purposes of flying must be accomplished, moreover, in different altitudes: short-distance travel is best performed at low altitudes, long-distance travel at medium altitudes, and research and combat at high altitudes. There are, in addition, many other purposes for which man takes to the air.

Let us conclude with the remark that the continuing progress of flying cannot be halted. As man reaches upwards to the outer atmosphere, new political problems arise, the nature of which we are as yet unable to grasp. Heretofore the relations between nations took place on what in practice was a plane. During the time of low-altitude flying, the relations between nations and military forces were determined by the geometry of a spheroid's curved surface. This period of close-to-the-ground flying was, and still is, characterized by the "polar concept." Henceforth, international relations will be geared to the more difficult geometry of the interior of a large spheroid enveloping as its core a smaller and impenetrable spheroid, the earth.[5] But even more confusing: the radius of the outer spheroid—symbolizing the aeropause or the altitude which man has attained at any given time—is expanding. The technologically most advanced nation will operate within the highest aeropause, while the spheroids circumscribing the aerial capabilities of the more backward nations will have shorter radii.[6] Hence, in the future, the geometry of power will be described by several enveloping spheroids of different sizes. It will be a far cry from the geometry of the battles of Yorktown and Bastogne, or even from the aerial battles of World War II. Truly, a new *Weltbild* is emerging.

---

[5] To be really accurate, we should speak of "ellipsoids" instead of spheroids

[6] Aerial capabilities can be described by spheroids only after global ranges have been attained. Before that time, these capabilities will be portrayed more accurately by spheroidal sectors. The sector with the longest radius and the longest circumferential arc will symbolize the range, altitude, and speed proficiency of the technologically leading air force. The geographic location of the sector also will be of significance. (Note: The military strength of an air force depends on numbers of aircraft, trained personnel, and facilities, *in addition* to technological proficiency.)

BIBLIOGRAPHY

Barnett, Lincoln. "The Canopy of Air," *Life,* Vol. 34 (June 8, 1953), pp. 74–98.

———. *The Universe and Dr. Einstein.* New York: William Sloane Associates, 1948.

Haurwitz, Bernard. *The Physical State of the Upper Atmosphere.* Toronto: Royal Astronomical Society of Canada, 1941

Lovell, Bernard, and J. A. Clegg. *Radio Astronomy.* New York: John Wiley & Sons, Inc., 1952.

Miller, A. Austin. *Climatology.* New York: E. P. Dutton & Co., Inc., 1953

Murchie, Guy. *Song of the Sky.* Boston: Houghton Mifflin Co., 1954.

Namais, Jerome. *An Introduction to the Study of the Air Mass and Isentropic Analysis.* Boston: American Meteorological Society, 1940.

Newell, Homer E., Jr. *High-Altitude Rocket Research.* New York: Academic Press, Inc., 1953.

Schaub, Werner. "Das Schwerefeld zweier Massen," *Weltraumfahrt,* Vol. 1 (1951), pp. 4–10.

Upper Atmosphere Survey of Data and Theoretical Analysis Los Angeles· Institute of Geophysics, U.C.L A., 1950

"The Vertical Frontier," *Time,* Vol LXIV (1954), No. 15, pp. 114–122

White, Clayton S., and Otis O. Benson, Jr. *Physics and Medicine of the Upper Atmosphere: A Study of the Aeropause* Albuquerque: The University of New Mexico, 1952.

Stefan T. Possony, Ph.D., Washington, D. C, has been since 1946 professor of international politics at the Graduate School of Georgetown University; he is also visiting professor, Foreign Policy Research Institute, University of Pennsylvania. He served formerly as Carnegie fellow at the Institute for Advanced Study in Princeton. Long a student of military air problems, he published in 1949 Strategic Air Power.

Leslie Rosenzweig, Washington, D. C., has been since 1946 employed as a geographer by the Department of the Air Force. During World War II he served with the Office of Strategic Services. In 1954, the Department of the Air Force presented him with the Award for Meritorious Civilian Service.

Some Fallacies Concerning Air Power

By EUGENE M. EMME *

NO technological innovation in the long history of mankind has been more frequently misinterpreted than aviation as an instrument of national policy. Air power is not understood either as a weapon in general or restricted warfare, or as an agent of commerce and communication. Yet Americans can be said to be air-minded. The crucial race for air-atomic superiority, the heavy burden of military expenditures, and the threat of utter devastation hanging over the urban centers of North America—these are inescapable realities which readily appeal to both reason and emotion on all levels of society.

In determining the best means to support the genuine political interests of the United States in world affairs, air power commands universal attention. Americans are agreed on the paramount importance of air power. Yet this seeming unanimity succumbs to confusion when the capabilities and limitations of aviation are variously assessed by statesmen, humanitarians, politicians, military strategists, and popular opinion. When air power is evaluated in the democratic process of decision making, certain fallacies appear with monotonous regularity. Some of these fallacies derive from obsolete military doctrines or vested interests. Others are products of ignorance, real as well as self-imposed. These fallacies are harmful to the national interest, and thus also to the security of the free world.

PERSPECTIVE ON TODAY

Thoughtful and prophetic speculations on the meaning of air power have not been lacking during the half century of the practical existence of aviation. Invented in an era of rampant nationalism and technically perfected in the crucible of wars, aviation has been primarily developed as a weapon. No nation, however, was prepared to exploit fully the capabilities of aviation as a weapon either in 1914 or in 1939. Likewise, the consistent failure of democratic nations to appreciate the role of aviation in the pursuits of peace, particularly in its maintenance, has been even more apparent.[1]

Early insights

Prior to World War I, high places of government did not abound in forward-looking opinions about aviation and its future. When Santos-Dumont was the first to get off the soil of Europe in a heavier-than-air craft in the fall of 1906, Lord Northcliffe, the British press magnate, fumed: "The news is not that man can fly, but that England is no longer an island."[2] The year before Louis Blériot's channel hop, H. G. Wells wrote in his novel *The War in the Air:*

> In the air are no streets, no channels, no point where one can say of an antagonist,

---

* This article reflects the views of the author only and should not be construed as necessarily reflecting official views of the Department of the Air Force or of the Air University.

[1] For a definition of air power as an instrument of national policy, see E. M. Emme, "The Impact of Air Power upon History," *Air University Quarterly Review,* Vol. 2 (Winter 1948), pp. 1–13.

[2] See Marvin W McFarland, "When the Airplane Was a Military Secret—A Study of National Attitudes Before 1914" (reprint of an address), *United States Air Services,* Vol 39 (September, October 1954), pp. 11 f.

"If he wants to reach my capital he must come by here." In the air all directions lead everywhere.[3]

Wells foretold that air power would revolutionize war as well as the social consequences of war. He considered air war to be a "universal guerrilla war, a war inextricably involving civilians and homes and all the apparatus of social life." In *The World Set Free* (1914), Wells foretold that air power would be raised to its ultimate decisive military role by atomic bombs. In 1909, an obscure Italian Major, Giulio Douhet, wrote:

> It must seem strange that the sky, too, is about to become another battlefield no less important than the battlefields on land and sea. But from now on we had better get accustomed to this idea and prepare ourselves for the new conflicts to come. . . . The struggle for the command of the air will be bitter; and the so-called civilized nations will strive to forge the most telling means to wage the conflict.[4]

And in 1916, a prominent American, Alexander Graham Bell, told the National Convention of the Navy League:

> We must realize that we are only in the infancy of aerial locomotion; that this is only the beginning of things. These are not matured machines that have developed their full offensive power; there is going to be further improvement, and if you will allow your mind to look ahead you can see that land power and sea power will ultimately be secondary in importance to air power.[5]

Impact on England

It was in England, the insular and spiritual homeland of sea power as well as of constitutional political tradition, that the revolutionary impact of aviation was to be first recognized. As diplomatic tension with Germany mounted during the "cold war" of 1912–14, German Zeppelins, massive in size but unproved in war, appeared as a "menace" in the eyes of the English populace. Rumors that German dirigibles had flown over England (possible in theory but pure fantasy in fact) aroused considerable concern. Ghostly flying machines were often observed after midnight. Because of aviation England had obviously lost the geographical immunity which twenty-odd miles of water had previously provided.[6]

During 1914–18, responsible leaders grappled with the realities of three-dimensional warfare. As First Lord of the Admiralty in 1914, Winston Churchill was charged with the defense of the United Kingdom proper. The British Army and its Flying Corps had been totally committed in the bloody deadlock of ground forces in France. Churchill foresaw that air warfare, even in this primitive period, did not possess clearly divisible categories such as offense and defense. He therefore immediately dispatched land-based naval aircraft "to deny the use of territory within 100 miles of Dunkirk to German Zeppelins." While the German Army and Navy fought between themselves over which Zeppelin service was to bomb England when the Imperial Chancellor raised the existing political ban on such action, aircraft of the Royal Navy based in France destroyed several German Zeppelins on their home bases in the name of air defense of the United Kingdom.

---

[3] *The War in the Air* (London: George Bell, 1908), p. 247. On H. G. Wells's clairvoyance on air warfare, see Professor Edward Mead Earle's essay in E. M. Earle (Ed.), *Nationalism and Internationalism* (New York: Columbia University Press, 1950), pp. 116–18.

[4] Giulio Douhet, *The Command of the Air*, translated by Dino Ferrari (New York: Coward-McCann, 1942), pp. 27–28.

[5] "Preparedness for Aerial Defense" (address given April 10, 1916), *Navy League Pamphlet*, No. 73 (Washington, 1916).

[6] A not dissimilar phenomenon perhaps occurred when "flying saucers" were to appear at the same moment the United States lost its isolated continental position in a shrinking world. On "Zeppelin Menace," see John R. Cuneo, *Winged Mars*, Vol. I; *The German Air Weapon, 1870–1914* (Harrisburg: Military Service, 1942), pp. 121–27.

When Gotha bombers roamed over London in 1916–17, Lloyd George appointed a special committee headed by Field Marshal Jan Smuts to investigate the serious plight of British air defense. While German bombs were falling on London (often evaluated after the war as a mere nuisance), the Smuts Committee unequivocally recommended that an independent air force be instituted immediately. This official report, called by some the Magna Charta of British air power, concluded:

> The day may not be far off when aerial operations with their devastation of enemy lands and destruction of industrial and populous centres on a vast scale may become the principal operations of war to which the older forms of military and naval operations may become secondary and subordinate.
>
> It is important that we should not only secure air predominance, but secure it on a very large scale; and having secured it in this war [1914–18] we should make every effort and sacrifice to maintain it for the future. Air supremacy may in the long run become as important a factor in the defence of the Empire as sea supremacy.[7]

The Independent Air Force of Great Britain for the conduct of a bombing offensive against Germany proper came into being the same year.

Air power during peacetime

For twenty years after its founding in 1919, the autonomous Royal Air Force was known as the Cinderella of the British armed forces. The vanquished nations were disarmed in the air and the League of Nations was delegated the task of regulating the peace for the victors. Under Winston Churchill as Secretary of State for Colonies in 1920, the infant Royal Air Force was adapted to peacetime tasks of the Empire. RAF squadrons served as police forces in the British protectorates and mandates of the Middle East, developing a system for "air control of underdeveloped areas." As the range and reliability of aircraft increased with technical progress in the 1920's, "air parity" became a vital strategic factor for European nations, first appreciated in England. It was determined by the Salisbury Subcommittee of the Committee on Imperial Defense, immediately after the French occupation of the Ruhr in 1923, that the Royal Air Force should always be strong enough to protect England against air attack by the strongest Continental air force within striking distance. Yet governmental policy based upon the assumption that there would be "no war in ten years" (established in 1924) actually provided for a Royal Air Force only one-half as strong in 1934 as the Salisbury Committee had recommended a decade earlier. Until the eve of World War II, appropriations for the Royal Air Force, though rapidly increased after 1935, were less than that for the Royal Navy and the British Army. In 1938, Britain was humbled at Munich largely because of her deficiencies in the air. Eventually, in 1940, Britain was forced to fight alone in the air for her very life.

Threat of aerial bombardment during peacetime

The diplomatic significance of the threat of aerial bombardment during the cold war of the 1930's is even now not fully appreciated. A brief summary of this painful episode may help provide perspectives for the reorientation of American policy today.

---

[7] Great Britain, "Second Report of the Prime Minister's Committee on Air Organisation and Home Defence Against Air Raids," August 17, 1917.

Atomic bombs are merely the second chapter of the air power story for most Europeans. Weapons of mass destruction were highly publicized long before and during the Conference for the Reduction and Limitation of Armaments held at Geneva in 1932–33. Poison gas and bacteria rained down from aircraft conjured nightmares of what total war could mean in Europe. While Soviet Russia today propagandizes a desire to outlaw atomic bombs, there was an attempt made at Geneva in 1933 to outlaw all aerial bombing. In "air-forceless Germany" (to use Hermann Goering's expression), the political device of building air raid shelters and conducting civil defense exercises was used to consolidate the populace under the young Nazi government in 1933. While secret rearmament and public works solved unemployment and social discontent within Germany, Adolf Hitler and Air Minister Goering were forging a new diplomatic weapon, the *Luftwaffe*.

In March 1935, after the independent German Air Force was "pulled out of the hat" of secrecy in direct violation of the Treaty of Versailles, British diplomats hurried to Berlin. Hitler told them that Germany now possessed "air parity" with Britain. This boast—a brazen lie—shocked British public opinion and British leadership to the core. Widely disseminated statistics on Germany's "first-line aircraft" aroused in Britain a feeling of helplessness and a fear of air attack which thereafter were to congeal in British political appeasement of Germany until the blitzkrieg in Poland and in British military inactivity during the phony war until May 1940 when Hitler seized the military initiative in the West.

"The bomber will always get through" was not a quotation from a doctrinal manual of the Royal Air Force. It was a fatalistic statement made in rebuttal by Prime Minister Baldwin to one of Winston Churchill's regular attacks in the House of Commons upon the imperfect state of British air defenses in 1934. The Royal Observer Corps, the "Shadow Factory" scheme for widening the base of aircraft production, radar development, the Spitfire prototype, and the mass production of gas masks—all these were stimulated by the events of 1935–36. Yet Britain and France remained reluctant even at this late hour to rearm fully. The bombing demonstrations in Manchuria by Japan, in Ethiopia by the *Regia Aeronautica,* and in the Spanish Civil War by the *Luftwaffe* magnified popular revulsion against the horror which a general war would bring to all of Europe; likewise the boasts of Goering, the apparent expansionistic designs of the Nazi Reich, and the "shop window" tours of the *Luftwaffe* skillfully conducted by the Germans for foreign military observers. Anti-Communism, anti-Semitism, and prosperity in Germany were also not ineffective tools of Nazi statecraft in influencing public opinion abroad. Subtle suggestions and eventually intimidation, blackmail, and naked ultimatums backed by the threat of bombing held over the leaders of European nations characterized the increasingly prominent diplomatic role of the *Luftwaffe* between 1935 and 1939.

When in 1938 war was postponed at Munich, the belief held by British and French statesmen as well as their peoples that the German Air Force was an overwhelmingly powerful threat was of decisive importance in achieving Hitler's bloodless victory. Britain possessed only six Spitfires. In Paris there were not enough gas masks to go around. British and French leaders therefore recoiled before the inhumane evil of a horrible war. Virtually the last thing that Chamberlain said to Hitler at Munich was that he hoped that the *Luftwaffe* would not have to bomb the women and children of Prague when the Third Reich absorbed the Sudetenland. It was thus that the threat of massive air attacks, albeit more inferred by democratic statesmen than explicitly advanced by the Nazis, proved to be of profound historical importance.[8] In March 1939, Goering pounded the table in front of the helpless Czech diplomats and stated that he would be chagrined to have to unleash his *Luftwaffe* to destroy the "beautiful city of Prague."

In the present day, the fate of the West seems to depend upon the response of peace-loving nations to the challenge of militant Communism with air-atomic power building up in its arsenal. The inherent vulnerability of democratic nations to threats of an atomic holocaust by an aggressor nation, not to mention the decisiveness of a surprise all-out atomic attack itself, only increases the urgency for collective security actions, adequate preparedness in the air, and, if and when necessary, the will to use decisive military force. This seems to be the harsh lesson taught by air power's contribution to the descent into World War II.

CONTRADICTIONS OF MILITARY DOCTRINE

Past miscalculation and fallacies with respect to air power are not confined to those revealed by the conduct of democratic governments faced by the threat of air attack by aggressive-minded nations during periods of relative peace. A brief consideration of theories on air warfare reflects the impact of aviation upon the meaning of warfare. It also clarifies the divergencies and vagaries of military doctrine.

Early theorists on the military role of aviation in some instances can rightfully be called prophets. Their views, like those of most prophets, were dogmatic and were distasteful to most of their contemporaries. Though "Billy" Mitchell, Hugh Trenchard, and Giulio Douhet were each guilty of overestimating the technical capacities of aviation in their own time, some of their most controversial thoughts seem to possess validity in the present day. Their exaggerations of the presumable effects of tons of trinitrotoluene dropped from aircraft were the result of miscalculation. Yet the demonstrated role during World War II of tactical air forces in land battles, the effective TNT strategic air attacks, and the subsequent addition of atomic bombs appear to have verified their conclusions based upon empirical reasoning.

Neither Douhet nor Mitchell were military thinkers in the realm of high strategy and national policy like Clausewitz and Mahan. Douhet did essay a framework of strategic concepts which fits air-atomic realities fairly well. His views of air attack as a decisive action for the demoralization of a nation seem well founded. Mitchell had a global view of American security in the air age (he pointed to the importance of Alaska and predicted the attack on Pearl Harbor), and he defined air power as a national instrumentality in its broadest economic as well as its military sense. Neither their theories nor their historical fame need be elaborated here. It is sufficient to point out that in 1921 they were one in believing that air power as a military force had revolutionized warfare because it brought the heart of industrialized and urbanized nations into the battlefield. This basic belief challenged the traditional purpose of armies and navies and questioned their plans and structures. Douhet and Mitchell both insisted, at the cost of their careers (while Trenchard went to the House of Lords), that a nation should organize its aviation capacity in peace to assure "command in the air" in war.

---

[8] The most recent account is in Viscount Chilston's "The Rearmament of Great Britain, France, and Germany down to the Munich Agreement of 30 September 1938," Veronica M. Toynbee (Ed.), *Survey of International Affairs, 1938,* Vol. III (London: Oxford University Press, 1953), pp 460–603.

The limited range and the unreliability of aircraft in the 1920's and early 1930's were not conducive to a rapid acceptance of air-age realities in a United States girded by broad oceans. With no more than five months' combat experience in World War I, a few American airmen nonetheless developed rich theories on a thin diet of meager appropriations and slow career advancement. By 1935, the United States had its four-engined B-17 (flying fortress) prototype in the air. In World War II, air armadas of four-engined bombers were to carry TNT war to German and Japanese cities. While both Germany and Japan began the war with startling employment of air forces, their leaders did not really understand the role of air power in war. Atomic air weapons reconciled the hitherto contradictory principles of "mobility" and "concentration of firepower." No longer are there any disputes about the decisiveness of strategic bombing in general war. No longer are there any disputes about the priority role of air forces in achieving "air superiority" over battlefields, in general or limited wars.

The Battle of Britain (1940) and the fate of Germany's air defense effort (1942–45), moreover, adequately demonstrated the crucial role of bombers in homeland air defense. The first raid of Bomber Command on Berlin altered decisively the course of the Battle of Britain—a fact not generally known. It caused an enraged Hitler to order the *Luftwaffe* to shift the attack from RAF bases and radar sites to the city of London. This was done at the most ineffectual moment of Fighter Command, which was also "their finest hour." The V-weapons failed to resurrect for the dying Reich any real hope of stemming the "air terror" of the Anglo-American bomber offensive. In the Pacific, the lack of range of Allied aircraft and the inaccessibility or unavailability of Siberian bases delayed the application of Allied air power to the task of obtaining the decision without an occupation of Japan by surface forces. The advent of atomic bombs merely underscored the revolutionary impact of air power upon general war. As one civilian military analyst recorded in 1946, the atomic bomb did not make air power more violent or more decisive: "A city can be as effectively destroyed with TNT and incendiaries—but it [the atomic bomb] will concentrate violence in terms of time."[9] The possible concentration in a general war of violence against an entire nation relegates military doctrine founded exclusively upon World War II or even upon the unique Korean experience to the realm of pure fallacy.

WELTER OF CONFUSION ON JOINT OPERATIONS

Questions regarding the role of air forces employed in joint operations with other military forces arouse the greatest confusion. Here, doctrinal traditions and service interests have been the chief source of fallacies both in the past and in the present. Military professionals have consistently thought of aviation in terms of their traditional war objectives. The airplane was tethered to surface forces. This was practicable during the infancy of aviation, but it affected adversely the organization and application of air power. A major intellectual road block raised by tradition-minded thinking in the past yet remains: so far, a comprehensive military theory of air power has not been elaborated.

---

[9] Bernard Brodie, *The Absolute Weapon* (New York: Harcourt, Brace and Company, 1946), pp. 70–71.

The basic assumptions of conventional military thought as laid down by Clausewitz and Mahan remained impervious to the influence of air power until World War II. Admirals and Army generals viewed the airplane as eyes to protect their respective battleships or troops in the line until World War II, some until Pearl Harbor or North Africa. With aircraft ship based, naval airmen considered aircraft primarily as a weapon of sea power for sinking enemy battleships, and later for bombing U-boat pens and enemy aircraft carriers. Military air power, first with the piloted airplane and now with guided missiles, has been consistently regarded by Army and Navy authorities as range-extended artillery. Airlift provides increased mobility or logistical support for infantry. Air weapons, traditionalists reason, should thus be organically instituted within armies and navies.

Military capabilities of aircraft

The range, speed of penetration, and directness of air attack thus have been either totally ignored or, at best, limited in strategical or tactical significance to armies in the field and navies at sea. These unique military capabilities of aircraft and their military payloads, on the other hand, have been the stock in trade of professional airmen. The records of many lengthy and heated interservice debates, even though overtaken in detail by the pace of continued scientific advance, provide documentation for many contemporary controversies.[10] The more strongly the airmen voice their long-held views on the splintering of air power, particularly that of tactical and airlift units among the various American air forces, the more they appear to be charged with expressing their so-called "vested interests." The professional airman insists, in turn, that the only "vested interests" involved are those of the nation. Yet among the prominent political figures in the Western world only Winston Churchill took the pains in 1949 to repeat in timely and poetic fashion the fundamental assumption expressed by the Smuts Committee in 1917:

> For good or ill, air mastery is today the supreme expression of military power, and fleets and armies, however necessary and important, must accept subordinate rank This is a memorable milestone in the march of men.[11]

Such words cannot be easily dismissed if one has read Churchill's memoirs of World War II and its cautious evaluation of the joint roles of the respective armed forces in that TNT war. Whereas airmen have been reluctant to press for the proper employment of armies and navies, their opposite numbers in the sister services have been quick to appreciate how air forces can provide powerful but ancillary support for surface forces.

The dynamic pace of technical progress indicates, with intercontinental aircraft and missiles a near reality (not to mention space vehicles), that even the earth's atmosphere is no longer the limit. All that the Congressional investigation of "Unification and Strategy" in 1949 could clearly record was that interservice differences with respect to the role of air power in military affairs "will continue because of fundamental professional disagreements on the art of warfare."

---

[10] See following reports (titles abbreviated): American Aviation Board (1919), Dickman Board (1919), Graham Committee (1919), Menoher Board (1919), Lassiter Board (1923), Lampert Committee (1924), Morrow Board (1925), Drum Board (1933), Baker Board (1934), Howell Commission (1934), Woodrum Committee (1944), Joint Chiefs of Staff Special Committee for Reorganization of National Defense (1944–45), Eberstadt Committee (1945), and the House "Unification and Strategy" Hearings (1949).

[11] From Churchill's speech in Boston, "United We Stand," *Vital Speeches*, Vol. 15 (April 1, 1949), pp. 380–84.

ORGANIZATION OF AIR POWER

Concern with the inadequate organization of the air power of the United States under the National Defense Act of 1947 and its amendments has been clearly manifested by the Navy attack on the B-36's in 1948 and the post-Korean campaign of the Army for tactical aviation. A reluctance of airmen to voice *their* own dissatisfaction may have been based upon the fallacy that they had finally in 1947 won "Billy" Mitchell's battle. The belated creation of an independent Department of the Air Force (three decades, no less, after the creation of the Royal Air Force) was, however, coupled with the creation of the Department of Defense over the three services. Thus, the United States became the only major nation in the world possessing the questionable luxury of four separate military air services: the Naval Air Force, the Marine Air Force, Army Aviation, and the United States Air Force. As one independent critic sympathetic with the latter air force has pointed out:

> The National Defense Act which purported to create a Department of Air, custodial of air power, conversely dispersed air power and invited continuous dispersement.[12]

One central issue most copiously documented by the "Unification and Strategy" investigation of the House of Representatives Armed Services Committee in 1949 was that revolving around the question of which American air force was to do what in the business of air power devoted to national security. There was no disagreement about the dominance of air power in national security. There was no disagreement about the dominance of air power in national military strategy or the requirement for "air superiority" in peace or varying degrees of war. Arguments over the feasibility of "strategic bombing" and how the inevitable "battle for the air" should be won revolved around the issue over which one of these several air forces could perform or should control this mission. These differences of opinion only compounded confusion on American air power as an instrument of national policy.

USAF

Neither the limited Korean experience and the creation of the prospect of future limited wars nor the announcement of the Soviet H-explosion in 1953 has appeared to cause any major alteration of America's basic organization for defense or the aviation tasks assigned to the various armed services as of 1947. All of the military services expanded during the Korean War. The United States Air Force (USAF) logically remains the primary military instrument of American air power. It is the American air service charged by statute with primary responsibility for the air defense of North America, as well as for maintaining what is not improperly called the "first line of national defense," the Strategic Air Command. It is also responsible for tactical aviation in joint operations with ground forces. Yet the Secretary of the USAF and the USAF Chief of Staff have no advisory seats in the National Security Council. The civilian Secretary of the USAF has no seat in the President's Cabinet. No airman from the ranks of the USAF has yet been named Chairman of the

---

[12] Gil Robb Wilson, "The Public View of the Air Force," *Air University Quarterly Review*, Vol. 6 (Winter 1953–54), p. 4.

Joint Chiefs of Staff. No ex-Secretary of the USAF has been raised to be Secretary of Defense. With the exception of the Alaskan and Northeast Air Commands, neither of which possesses significant commitments of land or sea forces, no USAF officer has yet been appointed commander of a major overseas theater command. Sheer time may rectify some of these matters which, outwardly at any rate, seem to reflect the fact that the realities of air power may not have been properly represented in the national organization for defense. But if counsel and judgment on major military matters involving air power are desired at the highest decision-making level of government (perhaps civil control itself) the organization for defense should logically reflect this in personal military and civil responsibility at the proper level. Political organizations and military commands remain, after all, human institutions. There is no substitute in a democracy for the virtues of personal responsibility and leadership.

General wars and limited wars

Governmental organization for defense should accommodate the prominence of air power in the air-atomic age, so that the nation's military interests may be best served. These basic military interests of the nation, all seem to agree, are survival by the prevention of an all-out general war, or, if war is forced upon us, the decisive prosecution of limited wars or, in the last resort, of an all-out war. In terms of these explicit and indisputable military interests of the United States, wishful thinking seems to be giving rise to the fallacious hope of turning the strategic clock back to 1945. This fallacy now is clothed in a political-military doctrine that would ban the discriminate use of air-delivered atomic weapons in small wars limited by political and geographical circumstances. Nothing perhaps could more encourage future Communist aggression. The nations of the North Atlantic Treaty Organization have apparently accepted the necessary role of air-atomic weapons in their defensive strategy. The decision not to use A-weapons in the Korean War appears to offer no precedent for future decisions concerning the prosecution of a limited war.

American military power is today committed to deter, or to fight if necessary, any Communist aggression supported by the implied threat or actual use of military forces be they guerrilla, conventional, or atomic. Appeasement of Communist aggression entails ultimate strategic disadvantages which might well approximate suicide for the United States and its allies. The lesson of British appeasement and military weakness and the decline of collective security in the 1930's (culminating in the temporary surrender at Munich, the fall of France, and the hairbreadth escape from defeat in the Battle of Britain) appear highly pertinent for today. Secretary of the Air Force Harold E. Talbott tersely expressed recently the crux of the matter as follows:

> I am afraid the new phrase, peaceful coexistence, means just that. You exist if you are too tough to tackle. You perish if you are weak and unready.[18]

The probability of World War III cannot be assumed. Such an assumption would only help to make it inevitable. But to organize and to plan military power for any less comprehensive contingency could be no less catastrophic. The only genuine deterrent to all-out war is the maintenance of retaliatory power as a means of punishment designed to fit that crime of aggression. The first Secretary of Defense, James Forrestal, formerly Secretary of the Navy, recorded in 1948:

---

[18] *New York Times,* November 28, 1954, p. E-1.

> . . . throughout my recent trip to Europe I was increasingly impressed by the fact that the only balance that we have against the overwhelming manpower of the Russians, and therefore the chief deterrent to war, is the threat of immediate retaliation with the atomic bomb.[14]

The Soviet possession of an air-atomic capability against the United States only increases the value of the deterrent role of the Strategic Air Command in American security. Yet there are those who appear to reason fallaciously that mutual capabilities for H-bomb destruction of the United States and the Soviet Union have eliminated the deterrent role of air power. The H-bomb deliverable by aircraft (including guided missiles) could be the greatest deterrent to general war ever known.

To organize and prepare military forces to fight *only* global general wars or *only* limited peripheral wars or *not* to fight at all, these are all fallacious concepts. Such fallacies merely point up the central dilemma of democracies in reconciling military and political means of survival. This is as true for the security of the United States itself as it is for the collective security of all free nations instituted in NATO or under the Southeast Asia Collective Defense Treaty. It is a serious fallacy to reason that air power can be suitably employed only in total war. Nuclear weapons are weapons of air power, not substitutes for it. Moreover, atomic weapons are no longer the exclusive weapons of air forces. There are many other weapons possessing a multiplicity of firepower effects which can be used with discrimination for a variety of decisive military results.

No responsible airman in the last decade has asserted that air power can do everything by itself, or even anything entirely by itself. But the diversion to missions of limited war in support of ground and naval forces of tactical air forces inevitably weakens the strength of over-all air defense and the strength of strategic striking forces. This was demonstrated by the Korean experience. Tactical air forces are today long-range air forces and carry atomic weapons. Thus, tactical air forces should play an indispensable "close-support" role in both continental air defense and the strategic air offense in a general war. If there should be future Koreas or limited wars fought with air and naval forces, weakening of the ultimate military power of the Western nations must be minimized if World War III is to be prevented.

Unified air power

The "unity" of air power—incorporating all strategic, tactical, and defense air forces—must be considered, then, a prime organizational requisite for economic preparation for *both* World War III and such "brush fire" wars as American and allied military forces may be committed to. The requirement for homeland security appears of highest priority. Only unified air power satisfies the requirement of preparing to fight, if necessary, either general or limited wars. The rebuilding of North Korean airfields and the growth of the Red Chinese Air Force, for example, indicate the importance which Communists appear to give to "air superiority" in possible future localized conflicts. Air power was the military factor which shaped the nature of ground operations in Korea, a fact many seem already to have forgotten, since "air superiority" was primarily granted to United Nations forces by default. Properly uni-

---

[14] Dictated memoranda after European tour in mid-November 1948, "Points for the President," the first one being on the atomic bomb. Walter Millis (Ed.), *The Forrestal Diaries* (New York: Viking Press, 1951), pp 537–38.

P15388

fied, American air power could be hurt in limited wars, but it could not be destroyed.

After a detailed examination of the fate of the air arm of the United States Army prior to and during World War I, one cautious and dispassionate historian concluded:

> Thoughtful citizens, layman and specialist, politician, and staff officers, would do well to ask and ask again if the military establishment . . . is sufficiently well organized to develop and exploit . . . these newest weapons on the horizon [e g., guided missiles]. Failing here, the nation will repeat the sorry pattern of the air weapon, wastefully groping forward with each innovation.[15]

Mobilization and power in being

The planning of national defense for future wars must be guided by the following axiom: In a future general war, the United States cannot again depend upon its allies for time to mobilize. The achievements in mobilization and production of the United States in two world wars offer no precedents for the solution of new problems posed by the threat of devastating air attack upon all major American cities within the space of a few days. The problem of strategic dispersal to meet the possibility of a wholesale atomic Pearl Harbor imposes a terrible burden upon the entire structure of our urbanized and democratic society. It is the problem of no less than dispersing an entire nation. This problem, whether it is posed in terms of a "long" or a "short," a "limited" or a "general" war, cannot be fully and completely resolved. Yet it must be faced squarely. One student of command and organization in modern war concludes as follows:

> The real danger of war to a democracy lies in the initial blow. Totalitarian nations, especially in this atomic age, are better fitted to plan and deliver a sudden and powerful assault than a democracy. If this trump card fails they become inferior to democracies, but the democratic state must be able to survive the first murderous blows. We must be defended by adequate and scientifically up-to-date forces. Our machinery for the higher direction of war must be capable of operating immediately under war conditions [16]

To survive the "first murderous blows" presents problems which can only be clarified in terms of home-front battlefield realities. Their solution, like that of the entire problem of civil defense, rests with all the American people. There is obviously nothing economic or inexpensive about the strategic problems created by air power, either in terms of dollars or blood. No responsible airman has yet said that air power was a "cheap" way to prevent or to fight World War III or to fight even a limited war. The terrific pace of scientific advances and the rapid obsolescence of aircraft and weapons preclude "cheapness" in the face of the requirement for maintaining effective military forces-in-being. Realistic preparedness of an industrialized society for war prohibits fallacious thinking. It remains primarily a question of how much the nation can afford *not* to spend on readiness and dispersion, a figure which may best be determined by assessing the actual military threat and intentions posed by the potential enemy.

NATIONAL SECURITY AND AIR POWER

The relationships between politics and technology in this age of global-ranged air vehicles and their A-bomb payloads present highly delicate questions when one speaks of fallacies. Yet it seems that the capabilities of air power have been improperly evaluated throughout the whole period of its evolution, first exaggerated in immediate importance by its frustrated champions, then reluctantly and incompletely accepted by its jaundiced critics.

---

[15] I. B. Holley, Jr, *Ideas and Weapons: Exploitation of the Aerial Weapon by the United States During World War I* (New Haven: Yale University Press, 1953), p 178 Particular commendation here should be given Professor Holley's superb accounting of the sparseness of analyses of air power problems by serious scholars; see pp. 179–209.

[16] Sir Robert Saundby, "The Higher Direction of War" (lecture at London University), *The Aeroplane*, Vol. 74 (February 20, 1948), pp. 210–11.

The decisions and actions which must be taken concerning air power today and tomorrow present a crucial challenge to democratic statesmen. It was possible for peaceful Britain to err in the 1930's and yet, with horrible cost and difficulty, survive in 1940. Now one aircraft with global range and one bomb may accomplish with ease more destruction than a fleet of TNT bombers were able to accomplish with difficulty in 1945. It would be a fallacy to assume that the existence of an intercontinental ballistic missile with a hydrogen war head changes the basic strategic problem of 1955 for the United States. A so-called "IBM" would merely be able to do more easily and more quickly what ordinary aircraft can be made to do now.

After tracing the decline and fall of the Roman Empire, an eighteenth-century historian held the comfortable view that the invention of gunpowder had so complicated the art of war that "barbarians" would have to become civilized before they could conquer. To Edward Gibbon, technological progress and moral growth were reciprocal developments. He could not foresee a time when man's scientific prowess would far outrun his political genius. Today, the entire world is influenced by a struggle between Western nations and militant Communism, and by the emergence of vast underdeveloped nations spurred on by nationalistic fervor. The United States stands as the leader of the Western nations in the struggle for the creation of a more perfect peace. Air power is the new military factor which has given to the most aggressive-minded nation decisive force with which to exploit the initiative. With the implied backing of force aggressors can exploit the political initiative with the subtle or naked ***threat*** of devastating force or, if they choose, the decisive ***use*** of overwhelming force. Instant or massive retaliation becomes meaningless if an aggressor air force can destroy with surprise devastation the total capacity or the will of a nation to retaliate.

Purposes of military power

Admiral Mahan clearly pointed out in his time the important distinction between the military offensive and the political initiative, which, he said, was one fundamental to any intelligent program of military preparedness. Mahan explained:

> A navy for defence only, in the *political* sense, means a navy that will only be used in case we are forced into war; a navy for defence only, in the *military* sense, means a navy that can only await attack and defend its own, leaving the enemy at ease as regards his own interests, and at liberty to choose his own time and manner of fighting.[17]

With respect to air power, these words might well be recalled when the terms "retaliation," "initiative," and even "air defense" are used without precise relation to political or military circumstances. The defensive political role of the United States air-atomic offensive capability, as well as the dominant but not exclusive role of air forces employed in wars that are limited politically, must be clearly defined both in terms of political objectives and of *all* available military means. The United States and its allies have no claim to that initiative in international politics which the Soviet and neutral powers of the world can exert at will, regardless of what the United States and its allies may do.

---

[17] "Current Fallacies upon Naval Subjects," *Harper's New Monthly Magazine*, Vol. 97 (June 1898), p. 45.

Air power employed with its full military capability should make the price of general world war virtually, though perhaps not totally, unacceptable. This seems particularly valid if one holds that man's ideas are of ultimately higher importance than man's machines of destruction. George Catlett Marshall reasoned:

> We have before us the greatest task ever faced by any generation of men in the fight to preserve peace. War, I say again, is no longer an evil. In this age, it seems intolerable. There is nothing to be said in favor of war except that it is the lesser of two evils. It is better than appeasement of aggression, because appeasement encourages the aggression it seeks to prevent; and it is far better than submission to tyranny and oppression, because without freedom and respect for human dignity, life would not be worth living.[18]

Traditionally, the purpose of military power of democratic nations has been to provide time for moral ideas to bring on peaceful change rather than to achieve change by force of arms. Weapons are not the sole means of determining national policy. Peace and war, however, are no longer absolute conditions. The threat of an atomic holocaust is here to stay. Communism continues to thrive and to threaten. At the moment of this writing, the best hope of mankind is that, whatever the role of force in the future, the most potent political ideas and military instruments, as well as the will to survive, may be on the side of the most peacefully inclined nations.

---

[18] Memorial Day Address, Washington, D. C, May 30, 1949

Eugene M. Emme, Ph.D., Montgomery, Alabama, is professor of modern European history and international politics at the Air University and research adviser on the Air War College faculty. During World War II he was a civil flight instructor for the Army Air Forces and later a naval aviator and historical officer. He is author of studies and articles, and is completing a book on Luftpolitik: German Air Power, 1919–1939.

The Scope of United States Air Strategy

By Thomas D. White

THE United States Air Force is an instrument available to the American people for their common defense and for the advancement of their national interests. The often awesome achievements of science have made that instrument one of unprecedented power: the jet-nuclear Air Force of today constitutes the most potent assembly of organized military strength in history. Air power is a strong and ready tool of United States policy. It is the principal military means with which the American people can meet the perils of an age of danger. It seems worth the time of any American to consider how the United States air power can be used to reduce our common jeopardy, which is persistent and growing.

Air power is a component of the total national strength wielded by the President in an effort to achieve national security. The national program for security embraces many elements in addition to air power. The political, the economic, and the psychological factors play essential parts. Surface forces of the United States and the military capabilities of allies add their contribution. Requirements for national security pose vast and complex problems. There are no quick and easy solutions, no miracle cures. Air power is not *the* answer: it is but one of many vital components which must be employed in a co-ordinated fashion to bring us closer to our goal of national security, and in the process protect our basic freedoms.

In January 1955, President Eisenhower described his concept of the scope of United States air power as it was given to us by the facts of the atomic age. The President set forth the following fundamental propositions:

> We should base our security upon military formations which make maximum use of science and technology in order to minimize numbers of men.

Though the President did not call attention to the fact explicitly, it is true that air power, using modern technologies, can bring greater force to bear on an enemy at less exposure of United States personnel than can any other military force available to the United States. Science has given us nuclear munitions which permit *one* aircraft to deliver more explosive power on hostile forces than has been released in all wars since the invention of gunpowder. Not only can United States air power bring such volcanic devastation to the battlefield at small direct exposure of American manpower, but by doing so air power reduces the exposure of friendly surface forces to the full strength of the enemy. The enemy division destroyed deep in hostile territory by our air power is a division that will wreak no casualties on friendly troops. Of perhaps greater importance is the fact that the enemy bomber blasted to oblivion by our air power while it is loading a cargo of death will not deliver that cargo on our own personnel, civilian or military, nor on our cities.

AIR POWER AS DETERRENT

To continue with the President's conclusions:

> Due to the destructiveness of modern weapons and the increasing efficiency of long-range bombing aircraft, the United

States has reason, for the first time in history, to be deeply concerned over the serious effects which a sudden attack could conceivably inflict upon our country.

Here the President has put his finger on the monstrous capabilities of nuclear air power. These capabilities in the hands of the enemy pose the possibility of unprecedented damage, almost unthinkable damage, to the industrial heart of our nation, as well as to the true base of our strength—our nation itself. In all the wars of our history the American nation has suffered less than 600,000 men killed. In these wars, damage to the basic industrial plant and to the cities of the United States has been slight. Such effects of war as did occur, for example in our early wars, were inflicted on the United States over a period of years. Today and hereafter, however, full use of the nuclear capabilities possessed by our enemies could produce ***in one hour*** millions of deaths among our citizens and indescribable destruction of our national industry. To be sure, such damage to the United States is only a fraction of that which would be inflicted upon our enemies by our own counterattacking air forces. To say this is not to suggest a sour satisfaction that the enemy would suffer more grievously than we. Rather, it is to suggest that the enemy may be persuaded not to deliver the attack which would invoke our withering counterblow.

The next conclusion of the President is related to the preceding one:

> Our first objective must therefore be to maintain the capability to deter an enemy from attack and to blunt that attack, if it comes, by a combination of effective retaliatory power and a continental defense system of steadily increasing effectiveness. These two tasks logically demand priority in all planning.

To deter an enemy from attack, one must pose a consequence of aggression so grave that the potential attacker dares not provoke it. The simple fact is that the United States possesses only *one* military capability ***in being*** which poses a deadly enough threat to our enemies. That capability is expressed in nuclear air power. There is another important facet of an effective deterrent —*immediacy*. A deterrent influence is at its greatest effectiveness when the consequences of invoking it are immediate rather than delayed. Here again, nuclear air power constitutes the only capability available to the United States by which a potential aggressor could be confronted instantly with the consequences of his aggression—consequences which would be most likely to be disastrous to him.

RETALIATION

If by misfortune our deterrent should fail to restrain our enemies, we must be prepared to deal with the ensuing deadly events. As the President has said, this problem requires a combination of effective retaliation and aerial defense. To be effective, retaliation against an attacker engaged in efforts to deliver nuclear weapons on American cities must virtually paralyze the aggressor and do so quickly. Such retaliation must destroy the bases and facilities supporting nuclear attacks against the Western Hemisphere, eliminate the systems of communications and controls within the aggressor country through which the assault is being directed, and break the industrial structure which provides the sinews of war to the enemy forces. This must be done with maximum speed. We dare not risk being hit by one avoidable hydrogen bomb for want of urgency in our reaction. If there is a military means of accomplishing these results rapidly other than with nuclear air power, I do not know what it might be.

Equally powerful and effective must

be our operations to halt the movements of enemy forces into areas such as Western Europe and free Asia. In the past, air forces limited to trinitrotoluene munitions have found the task of dealing with, or stopping, advancing ground forces exceedingly difficult. The limited destructiveness of TNT explosives required great accuracy for any effect, and the small lethal radius of these explosives limited the results of even bull's-eye shots. With nuclear munitions, however, concentrations of enemy forces can be obliterated. Whether a nuclear bomb explodes five hundred feet to the right or left, over or short, will be of only statistical interest. It seems clear, therefore, that nuclear air power should be capable of denying to concentrated surface forces access to any area, by land or sea. This fact is the greatest single element of security for our allies.

CONTINENTAL DEFENSE

The President stated our need for a continental defense system with steadily increasing effectiveness. As it exists today and as it is planned into the future, our continental defense system rests primarily on the capabilities of the United States Air Force. Our Canadian neighbors have made and will continue to make substantial contributions to the defense of North America. Yet they will not judge it unreasonable when I say that the United States Air Force provides the primary elements of such defense.

Research and development continue apace in the field of antiaircraft missiles. But the manned combat aircraft remains our principal defensive weapon and will so remain for many years to come. None of our defensive-weapons systems have yet achieved such sureness that the offensive bomber can be prevented from reaching its target. Using every means of air defense available to the United States, and using them well, we can exact serious losses from the attacking bomber fleets. The odds remain with the attacker, however. Only by the establishment of defenses in depth and by exploiting fully the cushion of time afforded to us by our far-flung strategic deployments can we hope to reduce these odds.

New, and even more effective, methods of air attack are in the offing. One of the most formidable of these new weapons is the intercontinental ballistic missile. When this missile is added to the arsenal of an attacker, defending forces will be faced with a whole series of new and even more difficult problems. Today there is no known defense against it. Countering this weapon has been likened to tossing needles from opposite ends of a darkened hallway, with the hope they might collide.

Thus, the present substantial advantage of the air offense over the air defense may be widened to unbridgeable dimensions. Antimissile defense is, at best, a most difficult business. Advantages of initiative, surprise, and diversified methods of attack weigh heavily on the side of the offensive force. Accordingly, we must attach these very offensive advantages to our own cause by utilizing long-range air power to cripple the attacker at his launching bases before he can complete the destruction of the United States. Timeliness in this action is supremely important.

SUPPORT OF INDIGENOUS FORCES

The foregoing are the areas of military action in which the President has marked out crucial roles for air power. There are additional tasks which United States air power can and does perform. The President alluded to one of these as follows:

> To provide for meeting lesser hostile actions—such as local aggression not broadened by the intervention of a major ag-

gressor's forces—growing reliance can be placed upon the forces now being built and strengthened in many areas of the free world. But because this reliance cannot be complete and because our own vital interests, collective security, and pledged faith might well be involved, there remain certain contingencies for which the United Nations should be ready with mobile forces to help indigenous troops deter local aggression, direct or indirect.

Thus the President contemplates the need of assisting indigenous troops in their efforts to meet aggression. The immutable facts of geography place the United States at vast distances from those free world countries which might be threatened by an aggressor. If United States forces are to come to the aid of such countries before it is too late, great speed of movement is required. Because many friendly overseas countries are weak and because the potential aggressor is militarily strong, American assistance must not only be moved rapidly over thousands of miles; it also must display true effectiveness once it has arrived on the battlefield. The qualities of mobility and strength can be offered best from nuclear air power.

It is also true that the indigenous forces maintained by potential overseas victims of aggression are largely ground forces. The costly and complicated factor of military air power must be contributed in substantial part by the United States.

WITHIN THESE LIMITS

The President stated: "We will never commit aggression but we must always be ready to defeat it." This American philosophy of not exercising the strategic initiative imposes great handicaps to our military posture. Our American armed forces must stand prepared to deal with the hostile acts of a powerful and deceptive enemy whenever, wherever, and however he may attempt to strike us. Through bitter experience we have learned that the enemy's action may be sudden and surprising, as in Korea, and that it may be carried forward with the shock effect of overtly employed armed forces. Again, the enemy's acts may be slow burning and camouflaged in the false garb of spurious "civil war," as in Indochina. Or the enemy may strike in the political field, his actions being devoid of widespread violence, as in Hungary, or, lastly, he may employ his armed forces for blackmail, forcing decisions through the patent threat of their nearness, as in Czechoslovakia. Thus we are confronted with a deadly variety of Communist strategics. Yet we must be prepared to defeat Communist aims, despite the apparent handicaps imposed upon us by our own philosophy.

A normal reaction to such a difficult problem as given to us by our aversion against striking the first blow would be to strengthen our armed forces far beyond Communist strength, and keep increasing them as Communist capabilities for aggression increase. We should do this, I suppose, were we unmindful of a related proposition set forth by President Eisenhower: "True security for our country must be founded on a strong and expanding economy, readily convertible to the tasks of war."

Here is a quarrel with any concept of unlimited expansion of United States armed forces. What irony, to build our armed forces and the monumental burden of their support to such proportions as to collapse our economy! What price military strength, if that strength itself were to become the cause of a fatal erosion of our vital institutions?

Taken together, these last two considerations cited by the President mean that our United States armed forces must be capable of timely and effective reaction to enemy aggressive intentions, but at the same time must not be excessively burdensome on our economy. Thus we are constrained to support only those military forces which offer the greatest all-round utility and effectiveness against possible enemy actions. Moreover, we must support military forces which inherently possess great mobility, great effectiveness, and—above all—speed. It can hardly be doubted that such qualities are most apparent in nuclear air power.

SCOPE OF AIR STRATEGY

What, then, is the scope of air strategy in this nuclear age? Its scope is that of the slow-burning conflict smouldering around the divided earth. Its scope is that of our current and future national peril, which is greater by far than any ever before known. The scope of air strategy embraces the steady effort of the United States, with ready strength to deter war; it ranges from the lesser tragedies of local conflicts to the dread collision of continents in arms. With all Americans, the United States Air Force prays that there shall never be a time when the United States must use the instrument of air power in all its inhuman fury. Yet, should that time come, American air power will make of it a last, fleeting moment of frustration to those who plunged the world into disaster, an instant of realized error before they are enveloped in the fiery shrouds of our nuclear retribution. Such is our final strategy of survival, a retaliatory threat poised in the belief that its existence will prevent our enemies from taking the ultimate gamble of total war. Under the protective mantle of this fierce restraint upon aggressors, the United States is able to pursue many types of action contributing toward national security. American air power is a sharp and tested tool of American and world security. It stands ready to help shape the volatile stuff of these tense times into a just and stable peace.

General Thomas D. White, Washington, D. C., is Vice Chief of Staff, United States Air Force. In the Air Corps since 1927, during World War II he was Deputy Commander of the Thirteenth Air Force in the South Pacific (1944–45) and Commander of the Seventh Air Force (1945–46). He served subsequently as Chief of Staff of the Far East Air Forces, Commander of the Fifth Air Force in Japan, Director of Legislation and Liaison, Office of the Secretary of the Air Force, Air Force Member of the Joint Strategic Survey Committee in the Office of the Joint Chiefs of Staff, Special Assistant to the Deputy Chief of Staff for Operations ct Air Force Headquarters, Director of Plans, and Deputy Chief of Staff for Operations of the Air Force.

Air Strength of the United States

By ELTON C. FAY

ONE American heavy bomber today can drop a single missile on an enemy with explosive energy surpassing that carried in all the planes of all the air forces, Allied and Axis, of World War II.

American air power began, however, by being too little and too late. Its early armament was a grenadelike bomb. World War I produced high hopes and low output: a call for 22,000 aircraft in the first year after American entry; an actual production of 13,894 in two and a half years, with the war long since ended. But the disillusioning experience paid. When two decades later the next war loomed close the United States objective was an annual production of 50,000 planes. The 1944, peak-year production of military aircraft was 96,318.[1]

Out of that first world conflict, too, came the rudimentary tactics and organization which today are American air power, deployed globally, armed atomically. Never before in the ancient history of war has a single force possessed the destructive power and the ability to deliver it which repose in the air arm of the United States military service.

WORLD WAR I

There were valid reasons for the disappointing production at the inception of American military aviation.

When the United States entered World War I, the airframe and aircraft engine industry hardly warranted the name. There were no reservoir of skilled aircraft labor, no specialized machine tools, and nothing comparable to the materials priority system of World War II. Wood and fabric did not lend themselves to the high-speed processes of the next war, with metal extrusion, heavy presses, and multiple assembling gadgets. Even the automobile industry, from which had to come the cadre of skilled aircraft production workers, was itself tiny by the measure of the giant of these latter years.

In personnel, the picture was brighter. When World War I began, the aviation section of the Army consisted of about 130 officers and 1,000 men; at its conclusion there were over 195,000 officers and men. Virtually all of them, however, were citizen-soldiers, and when the war was over they went home.

Accordingly, American air power entered the first years of peace with a handful of career fliers of the regular military establishment, a collection of aircraft of which about 3,200 DH-4 planes were combatant, if obsolete, and an industry deflated immediately by contract cutoff. There also remained as surplus a really sizable fleet of trainer aircraft—an element to be helpful in the lean years ahead.

The war left another heritage. From it there had been gleaned the elementary facts of air warfare, weighted heavily to tactical support of ground forces. The doctrine of strategic air war still awaited the Douhets and Arnolds and Le Mays. Although most of the pilots left planes never to enter again except as passengers, a few took with them back into peacetime life the enthusiasm and skill of the war. They became the pioneers, the barnstormers, the early air-mail fliers and—a few—the men who emerged as leaders in today's air transport and manufacturing industries. These—the little band of airmen of the regular military establishments and the civilians who continued flying—were the men who kept the nation's spark of interest alive.

---

[1] *Aviation Facts and Figures, 1953* (Washington, D. C.: Lincoln Press, 1953), Chap. II, p. 16.

CIVILIAN AVIATION

When the war ended, the average civilian retained at least a mild curiosity in aviation, although he might have been cool to talk of more war and planes and pilots to fight it. The cow-pasture fliers, the stunt men, the wing walkers eventually lured him into the airplane. He came to watch their antics, then returned to fly twice around a field for three dollars. One day he found it was faster and not too much more costly to get to the next city by hiring a pilot and his open-cockpit, war-weary plane to fly him there. It was primitive and unorganized, but there was a lot of it. In 1925, still using war-surplus aircraft with a smattering of new models, the flying services accumulated 6,823,730 passenger miles. An air transport industry was being born.

The manufacturing industry, starving and all but nonexistent for a half decade, began to revive. New planes and, equally important, new designers appeared. Military aviation benefited. The research and development efforts of civilian aircraft designers were grist for the mill of aeronautical design. By 1926 the scheduled airlines were well established and in that year carried 6,000 passengers—a modest beginning but the forerunner of a year when 34,000,000 domestic and overseas tickets would be sold—the 1954 figure.[2]

THE MILITARY AND THE LEGISLATORS

Nevertheless, the take-off and climb to altitude of American air power was slow and there was turbulence.

Many of the foremost military commanders of the country, who had helped win a great land war, still looked upon the airplane essentially as a handy device for battle-line observation, with occasional diversion to troop-support assignment. Successful tests of bombing against ex-German warships in the early twenties sharpened the civilian's attention to air power, but they also sharpened tempers within the military family.

Until this era of cold war, funds allocated by Congress to the military during peacetime were modest, even inconsequential. It would have been less than realistic if the land- and sea-service chiefs had not insisted that the great bulk of money go to the established branches rather than to a weapon so new and so little tried in war as military aviation.

With what they could get, the army and navy airmen managed not only to keep flying but to design and build a handful of new aircraft and work up new techniques. The Army's air service produced a heavy bombardment aircraft, a six-engined triplane. It was not a glittering success. The most remarkable feature was that the big and heavy airplane succeeded in staying in the air at a top speed of only 61 miles per hour.

PROGRESS IN THE TWENTIES AND THIRTIES

The progress of military aviation made a big jump in the latter twenties. Charles A. Lindbergh flew a single-engined monoplane from New York to Paris. Two army pilots flew a military plane from the United States to Hawaii.

---

[2] Air Transport Association, *Air Transportation Progress Report* (Washington, D. C., 1953), p. 3.

There were round-the-world flights and endurance flights by military aircraft.

Those flights established the reliability and range of airplanes, pointing the way to strategic air warfare. If bombers could strike far, there was corollary need for countermeasures. The original, basic function of the airplane as a strafing, troop-supporting weapon broadened. The "pursuit" plane evolved and then mutations of that model. Although the bomber strategists of the 1930's might not have foreseen the requirement, even the stoutly armed B-17's and B-29's of the coming war would need escort protection on deep-penetration missions.

The first two years of the thirties brought the B-9 all-metal bomber with two 600-horsepower engines, the A-8 all-metal attack monoplane, and the B-10 bomber with 200-mile-per-hour speed.

The Army Air Force asked for a large, long-range aircraft to bomb from high altitude—a true strategic weapon. The design for the B-17 was ready in 1933. The first test plane flew in 1935. The first delivery to an operational unit was March 1, 1937. With big air power had come another problem, lead time—the months and years between the stating of a requirement and delivery of the first combat model. This was a factor which grew in importance with the growing complexity of aircraft, and one with direct bearing on the timing of decisive air campaigns in the next world war, in Korea, and, latterly, in making ready to meet the Soviet threat.

Army aviation had expanded to the point where it no longer could function as a mere adjunct of the Signal Corps. The office of Chief of Air Corps was created, primarily responsible for procurement and training. Then in 1935 the Army decided its air arm needed a special, operational command, and General Headquarters Air Force was formed. The tactical units were brought under command of GHQ, but the other, quasi-separate, office of Chief of Air Corps continued, with its responsibility for procurement and training—an arrangement productive of friction and administrative complications. The solution, not easily attained, was organization of the Army Air Forces in June 1941—an over-all air arm combining the functions of the Air Corps and GHQ.

When Pearl Harbor came, the United States Army Air Forces had 12,000 planes, 275,000 enlisted men, 23,000 officers, and 16,000 cadets. At peak strength, the AAF was able to put 13,000 planes in combat and had a personnel strength of over 2,411,000.

American plane designers and tacticians saw a prelude to modern air power in 1936. Germany and Russia sent planes and pilots to the Spanish Civil War, for actual battle test of aircraft, men, and maneuvers.

WORLD WAR II

For fifteen months before World War II encompassed the United States, the designers and tacticians could assess the application of air power to the battlefield and its approaches. This was the advent of the Stuka dive bomber and its relatives, of fighter planes to attack dive bombers, of the precise timing and deployment of planes and masses of planes to pinpoint fixed and moving targets.

In the first phase, true strategic bombing was potential, even moderately applied, but it remained generally in leash while Hitler strove for quick victory with armor and tactical aviation. But the application of strategic air warfare followed fast. The Americans still were left a little time to observe before they were committed.

They did not agree with all tactics. They believed that all strategic bombing need not be under cover of darkness, that with the visual aiming then used daylight made for better bombing, and that "boxes" of bomber formations could with their own gunfire protect themselves against interception. They were right about daylight bombing, wrong about unescorted bombers.

FACETS OF MODERN AIR POWER

When modern air power arrived for the United States it had many facets. Total air power is a complex of production, of huge bases scattered over the face of the earth, of supplies by the hundreds of thousands of tons, of personnel, of strategic and tactical bombing, of interception, of antiship and antisubmarine warfare, of transportation.

World War II established a pattern of commands which in large measure prevails today, with modifications and additions.

The Eighth Air Force of the European theater and the Twentieth Air Force of the Pacific were the wartime antecedents of today's Strategic Air Command—the medium and heavy bombers and long-range strategic reconnaissance aircraft. The Ninth Air Force of the European theater of operations and its Mediterranean and Pacific counter-parts evolved into the present Tactical Air Command of light bombers and fighter bombers. Developing partly as an offshoot of overseas tactical organizations and partly from the special requirements of continental security is the Air Defense Command—the jet interceptor force and its related radar warning and aircraft control system.

The Navy's primary mission is control of the sea and the air column above it. It applies its own air power in a variety of ways. One segment of naval aviation is attack—carrier-based aircraft assigned to detection and destruction of enemy combatant and merchant shipping and naval targets presented in bases and shipping ports. A second is antisubmarine operation, conducted both by land-based aircraft and carrier-based hunter-killer planes and helicopters. A third is long-range patrol—the search for targets for the attack planes and surface and subsurface fighting ships. The naval air force, including marine aviation, has a fourth function exactly like that of the air force's tactical outfits—the support of land troops in ground combat on or near coastlines. A fifth function is collateral support of strategic bombing, an assigned mission which has engendered interservice argument.

Military air transport

World War II gave rise to an element of air power which had existed neither in World War I nor in the interim, a world-wide system of military air transport. In practice, the system was two networks, the AAF's Air Transport Command and the Naval Air Transport Service. Under the service unification program of 1948 they were combined into the present Military Air Transport Service.

The motivation for the wartime development and swift expansion of a military air transport system was obvious. With war in two hemispheres, critically needed equipment and manpower had to be distributed quickly. Half of the less than four hundred aircraft of the commercial airlines were taken over, and the air force contracted with almost all of the seventeen scheduled lines to fly military routes. Simultaneously, the military services placed orders in large volume for their own transport aircraft, including designs bigger and of longer range than any operated by the commercial carriers.

Today's C-124 cargo plane, with its 25-ton load lift, and tomorrow's turboprop C-132, to carry 80 tons in transoceanic operation, are the long-legged, weight-lifting descendants of the C-47, C-46, and C-54.

In the latter phase of World War II there arose another requirement for large-scale, although short-haul, transport. The American and British armies adopted airborne operations from the earlier limited but successful application of that adaptation of air power. However, paratroop planes and gliders used by the United States to put ground forces down in "airheads" behind enemy front lines were the specially equipped, specially manned aircraft of the overseas tactical air commands instead of the conventional military transport services.

Unification

The objective of the 1948 service unification program was to bring together under comprehensive top administrative and operational direction the three major military services, ground, sea, and air. In the process of unifying, the Army Air Forces acquired autonomy and coequal status with the Army and Navy, becoming the United States Air Force. The primary components of air power were thus brought into a single, co-ordinated force under central direction.

Curiously, one of the exponents of this doctrine is a man neither American nor an airman, Field Marshal Lord Montgomery. That soldier and strategist states:

> Air power is indivisible. If you split it up into compartments you merely pull it to pieces and destroy its greatest asset—its flexibility.[8]

Flexibility is indeed the pattern of American air power. To meet commitments abroad and duties at home, it must be prepared to head forth instantly on one or many missions in many places. The task assigned may be to annihilate munitions cities and military bases of a major power with fission and thermonuclear weapons. Or it may be another unwanted but unavoidable bush war where the air power needed is tactical support of ground warfare. And always there is the vital assignment, air defense of the continental United States.

PRESENT STRENGTH

American air power at present (May 1955) is composed of about 120 wings. When in June 1957 it attains 137-wing strength its forces are programed as follows:

Strategic, 54 wings. Of these, 11 will be B-52 heavy bombers, supported by jet tanker planes; 28 wings of medium B-47 jet bombers, also with supporting tanker planes; the balance will be reconnaissance units, long-range supersonic strategic fighters with atomic capability, like the F-101, and fighter units for defense of Strategic Air Command planes and installations.

Air defense, 34 wings. These are to include present subsonic interceptors and a high percentage of supersonic aircraft, among them the F-100 and F-102, the latter a delta-winged design intended for stratosphere interception. The Air Defense Command presently has slightly over 2,000 aircraft, all of them jets, operating in about 23 wings.

Tactical, 38 wings, a force built around jet fighter-bombers and light jet bombers. Within this command is the F-84G fighter, capable of carrying tactical nuclear fission bombs, and the B-47 and B-66 light bombers, all jet-engined. The nominally limited range of the F-84G is extended by in-flight refueling.

Airlift, 11 wings or the equivalent

---

[8] Lecture by Field Marshal Montgomery at Royal United Service Institution, London, October 21, 1954.

thereof in separate squadrons. These are the personnel and cargo carriers, to move heavy tonnages of high priority military cargo. Going into the airlift force now are the fast, long-range C-130 turboprop transports.

STRATEGIC AIR WARFARE

The air force judges strategic bombing its primary mission under present international conditions, on these grounds: (a) *deterrent,* a weapon maintained at such a state of readiness and with such instant and massive retaliatory capability as to make it military folly for an aggressor to attack; (b) *defensive,* a weapon to reach and destroy homeland bases from which enemy air attacks are being launched or through which they are staging.

In its less precise moments, the air force has called its present heavy bombers—the B-36 and the new B-52—intercontinental or global. They are that only with certain operational assists—forward staging bases offshore or overseas to serve as stepping stones or midair replenishment of fuel from flying tankers taking off from advanced bases and making rendezvous with the bombers near an enemy frontier. The combat radii of the two planes would not allow strikes from North American continental bases at targets in inner Eurasia nor even many outer zones unless the above-mentioned aids were used.

Even from bases in Canada and Alaska the distances to potential targets are impressive despite great-circle, high-latitude courses. From Goose Bay, Labrador, to Moscow is about 3,600 miles; to the oil-producing region around Baku, on the Caspian Sea, 4,700. A bomber taking off from Ladd Air Force Base, Alaska, and aiming for Irkutsk, the Soviet atomic center in the Lake Baikal area, would have 3,500 miles ahead of it.

Overseas bases

But start the bombers out on the final leg of their strikes from bases up near the top of the world or in North Africa or Spain, if English and German airdromes are too dangerously close: From Thule, on the northwest coast of Greenland, the route down over the roof of the globe to Moscow shortens to 2,500 miles. From Sidi Slimane, of the USAF complex of fields in North Africa, the mileage to Baku's petroleum farms is 3,100; to Stalingrad heavy industry, 2,700.

The B-36, currently the only heavy bomber in operational use by the Strategic Air Command, has a combat radius of approximately 4,500 miles with a five-ton load. Its speed, with six piston engines developing 3,800 horsepower each and four turbojets each producing 5,200 pounds thrust, is given officially as over 435 miles per hour. Practically, its cruising speed and probably its maximum speed are somewhat less.

The air force classes an aircraft as obsolescent when it is outmoded by the known advances of the enemy in development of counterweapons. On this premise, the jet interceptors of the Soviet air force have rendered the comparatively slow B-36 obsolescent.

The B-52, without using the in-flight refueling for which it is designed, has a present combat radius of about 2,500 miles, a range of 6,000. Air force officials say they hope to increase the range to 10,000, which would give a combat radius of about 4,000 miles. Powered with eight turbojets, the B-52 has been described by the air force as being faster than the B-47 jet medium bomber for which there has been a reported speed of 656 miles per hour.

It is evident, by comparison of target distances with radii of operation, that overseas bases are essential to the waging of strategic air war now—and will remain essential for several years to come.

Definition

The Defense Department's definition of strategic air warfare is this:

> air combat and supporting operations designed to effect, through the systematic application of force to a selected series of vital targets, the progressive destruction and disintegration of the enemy's war-making capacity to a point where he no longer retains the ability or the will to wage war. Vital targets may include key manufacturing systems, sources of raw material, critical material, stock piles, power systems, transportation systems, communications facilities, concentration of uncommitted elements of enemy armed forces, key agricultural areas, and other such target systems.[4]

This official definition was written originally in 1948 and reflects some of the strategy of conventional weapons in World War II, including the delivery of standard high explosive and incendiary bombs by masses of bombers.

Thermonuclear bomb

Into a B-36 or B-52 bomber of today can be loaded a hydrogen bomb.

The test of a thermonuclear bomb in March 1954 produced power unofficially estimated at between 15 and 17 megatons (the equivalent of 15,000,000 to 17,000,000 tons of conventional trinitrotoluene explosive). Theoretically, the magnitude to which a thermonuclear bomb could be scaled up is virtually unlimited; practically, the possible ceiling might be on the order of 30 to 50 megatons.

The thermonuclear bomb is an area-destroying weapon. For more selective bombing of defined targets, the standard nuclear fission bombs, of magnitude up to about 50 kilotons, are available. They are weapons for the bays of medium bombers such as the B-47 and B-50.

Speed and altitude

The six-jet B-47 medium has much of the potential long-range characteristics of its bigger B-52 brother, being equipped for in-flight refueling from tanker aircraft. Its speed and high-altitude capabilities fit it for matching against jet interceptors: speeds well above 600 miles per hour, bombing altitudes well above 40,000 feet. Range of the B-47, without refueling, is over 3,000 miles. In a test using three aerial refuelings, a B-47 has flown slightly over 12,000 miles in 24 hours, dropping a dummy 10,000-pound bomb at the halfway point of the flight.

Under development is a supersonic medium bomber, the B-58, presumably to be capable of carrying nuclear bombs.

The speed of bombers, Soviet as well as American, has posed a profound problem of location and interception.

An air force official describes it in this manner: A jet bomber is approaching at 50,000-foot altitude at a speed of 600 miles per hour. The jet fighter heads toward him at the same speed. The combined or closing speed of the two aircraft is 1,200 miles per hour or twenty miles a minute. This is too fast for the human mind or muscle to work against. So the fighter is given electronic instruments to find the enemy bomber, aim at him, and fire the guns at the correct instant. There is only one pass. If the fighter misses, a great city may be destroyed by the bomber.[5]

The IBM

The problem (or advantage) of the jet bomber is a mere prelude to what is on the way—the intercontinental ballistics missile, short-named the IBM.

---

[4] United States Department of Defense, *Functions of the Armed Forces and the Joint Chiefs of Staff* (Washington, D. C., 1954), Section VII: Glossary of Terms and Definitions.

[5] Address of Secretary of Air Harold E. Talbott, National Press Club, Washington, November 24, 1954.

The prototype of those missiles, used by the Germans more than a decade ago, attained terminal speed of more than 3,500 miles per hour at the end of high trajectory flight. For intercontinental use, the zenith of the trajectory course would be several hundred miles high—beyond the range of any existing radar detection system. With existing detection and tracking equipment and with even the fastest currently operational or projected jet fighter types, the task of locating and interception would be hopeless. It is described as akin to two men standing at opposite ends of a hall and pitching needles at each other, in the hope the needles might collide. The search for countermeasures now is directed toward some vastly improved form of detection and tracking, using electronic computors to produce detection and aiming coordinates in split-second timing.

It may be assumed that the race for IBM's is being pushed by both the Soviet Union and the United States. Reports of a new Soviet rocket motor with the fantastic thrust of 264,000 pounds at sea level give a note of urgency to the contest.

FUTURE PROSPECTS

How soon will true intercontinental missiles appear, to make obsolete both the long-range strategic bomber and the jet interceptor? The guesses by men who might know have been in the early 1960's.

The ability of present jet bomber forces to strike suddenly with overwhelming atomic weight—and the looming prospect of intercontinental missiles with the same destructive power—raises questions about the value of stand-by production facilities for use after the outbreak of war.

There is one school of thought, numbering among its members many of the best air strategists, which holds that the next war will be determined by the weapons on hand at the hour of its inception. These men contend that there will be no time to get an industrial backup into operation, if indeed the reserve production facilities survive the first hours or days of war.

There is another side to the coin. The thought that hydrogen weapons have become so all-destructive that no belligerent would be so suicidal as to use them because of retaliation in kind was first expressed in philosophical circles. But this idea is now getting serious, calculating attention by the airmen whose business it is to plan for many possible forms of war. If thermonuclear weapons indeed cancel each other out of use, air warfare may not recede as far as the conventional high explosive and incendiary bomb but might be restricted to utilization of "standard" nuclear weapons—the fission bomb.

This could put massive strategic air power into a status of reserve and promote tactical aviation as the foremost weapon—the position it held when air power came into being almost forty years ago.

Elton C. Fay, Washington, D. C., has been since 1924 an Associated Press staff writer on governmental and political matters and beginning with World War II on military affairs in the United States and overseas.

The Foundations of Soviet Air Power: A Historical and Managerial Interpretation

By Ramsay D. Potts, Jr.

IN 1952, Lieutenant General Thomas D. White, then Deputy Chief of Staff for Operations, United States Air Force, revealed to the American public that the Soviet Union was in possession of about a thousand bombers of a type similar to the United States B-29 Super Fortress. General White added:

> From bases in the northeast of Siberia or in the Arkhangelsk-Murmansk areas [these Soviet bombers] are capable of making one-way attacks on any city in North America. By [aerial] refueling . . . the Soviet bombers could carry out two-way operations.

President Truman, President Eisenhower, and various chairmen of the United States Atomic Energy Commission have repeatedly informed the world that the Soviets are acquiring nuclear weapons, which presumably these bombers or their successors could carry. Long-range atomic-air power thus has emerged as the greatest single military strength of world Communism; the only real strength, in any event, with which the Soviets can jeopardize the security of the United States.

Ironically, this most important threat to the American way of life and the values for which it stands is little understood outside very small professional circles. This reluctance to keep informed about the major danger to our country sets the stage for Soviet air power to do its most damaging work.

Sources of Information

Ignorance about Soviet air power often is explained on the grounds that little good information is available in public print. The very opposite is true, although, no doubt, documentation is somewhat scattered and by no means complete; nor is it necessarily accurate in every detail. The point is, however, that the most important facts of Soviet air power can be determined, at least in their broad outlines, exactly in the same way as our scholars have been able to bring out the salient features of Soviet economics, politics, ideology, and military doctrine. In 1950—and the documentation has improved since—Asher Lee, a noted English student of air power, stated that available literature on the Soviet air force was sufficient to disclose "a pattern which enables it to be assessed reasonably well, and permits of fairly confident prediction of future trends."[1]

Information about Soviet air power has been made available by the German, French, English, Swiss, Swedish, and American governments over a period of many years. American congressional and English parliamentary defense hearings reveal important data Sources of pertinent information include furthermore a few, fairly representative, writings by knowledgeable Soviet defectors; numerous Soviet and German documents now in the various libraries of the Western countries, including libraries of several study centers specializing on the Soviet Union; frequent discussions in Western military publications; and, probably most important, uninterrupted and excellent news coverage of about a dozen English and American aeronautical trade journals.

---

[1] Asher Lee, *The Soviet Air Force* (2d ed.; London: Gerald Duckworth & Co., 1952), p. 1.

PRECONCEPTIONS AND ACTUALITIES

American lack of interest probably is due in part to an ineradicable skepticism concerning the ability of the Soviets to produce modern technical equipments, advanced jet bombers, and such complex devices as hydrogen bombs. To many, this Soviet air threat is a twentieth-century version of Potemkin's villages. Why, Russian industry is way behind American industry, Russia's national income is much lower than that of the United States, and there are no more automobiles in the Soviet Union than in the state of Massachusetts, or less than there were in the United States in 1915—forty years ago! Would it be unfair to suggest that such preconceptions can be dispelled only through extensive and objective research?

It may be granted that, at first glance, the existence of a first-rate long-range air force in an industrially underdeveloped country appears to be something of a paradox.[2] Yet a study of the historical antecedents of the present Soviet air threat reveals that the emergence of Soviet air power as a major factor in world politics was not a case of spontaneous generation. It is true that postwar aviation progress in the Soviet Union was amazingly fast, but Soviet air power as presently constituted is neither a miracle nor a fraud. It is the result of a long period of methodic and extensive efforts.

From its inception, Soviet aviation has been the creature of a state born in violence and eager to engage in permanent conflict, a state in which the alternative destinies foreseen for its future are "destroy or be destroyed." But the revolutionary purpose of the Communist government was only *one* condition making possible the development of Soviet air power. The other was the fortuitous circumstance that this government found the men to carry out its designs, or rather that there were experts so dedicated to the cause of aviation that they prevailed on the Communist leaders to give them a free hand.

The history of Soviet air power can be broken down into three general periods: the years between World War I and the great political purge in the thirties; the period of 1938–45, including the climactic experiences of World War II; and the period after 1945.

FIRST PERIOD OF SOVIET AIR POWER

In 1918, Andrei Nikolaevich Tupolev and Nikolai Y. Zhukovsky joined forces to become the founding fathers of Soviet air power. These technicians persuaded Lenin to set up the two organs which have dominated Soviet aviation to this day: TSAGI, the Central Aerodynamics and Hydrodynamics Research Institute, and the Zhukovsky Air Academy,[3] the "Massachusetts Institute of Technology" or the educational arm of TSAGI (which offers a five-year postgraduate course). G. A. Tokaev, a graduate of the Zhukovsky Air Academy, recently described it as follows:

> It is a vast university which provides facilities for study and research at the highest level, and specialises in aeronautics just as European universities used to specialise in the humanities. It is no longer regarded as practical in the U. S. S. R. to have the many subjects necessary for the technology of aviation studied piecemeal,

---

[2] Russian achievements in the construction of tanks should convince skeptics that the Soviets are quite capable of producing complex weapons which are the equal of similar weapons produced in the West.

[3] G. A. Tokaev, *Betrayal of an Ideal* (London: The Harvill Press, 1954), p. 188.

as they still are in some countries; they are a 'world' of study and research in themselves. Indeed, they are so abstruse that students are admitted to the Zhukovsky Academy as a rule only after they have had a normal university preparation. The Academy, in other words, is a postgraduate university in the old sense. No doubt elsewhere the same higher studies and research are pursued, but the institutions where such work is done are not so centralised as in the Soviet Union, nor are they given such distinguished status.

Tupolev was appointed head of TSAGI. With an interruption during the purges, he has been the dean of Soviet bomber designers for over thirty years, thus assuring a continuity unparalleled elsewhere.

Tupolev and Zhukovsky went about their business methodically. They attempted to preserve the aeronautical know-how of czarist Russia, laid the groundwork for a native Russian aircraft industry, initiated the exploitation of foreign science and technology, set up training programs for designers and skilled workers, started systematic experimentation schedules, and, interestingly enough, embarked on a campaign to make the peoples of Russia air-minded.

Foreign assistance was of key importance. It was obtained largely from Germany. In 1922, Professor Hugo Junkers supervised the construction of a large aircraft factory near Moscow and shortly afterwards experimented with Tupolev in building one of the world's first all-metal aircraft. German air officers unable to function openly in disarmed Germany used Soviet schools to circumvent some of the stipulations of the Versailles Treaty but at the same time provided staff training to the inexperienced Soviet aviators. German concepts gained wide acceptance, and to this day Soviet aviation reflects this early German influence.

By 1923 sufficient progress had been made to establish the first squadrons of the Soviet Air Force. Simultaneously, a massive campaign of air education was undertaken. Hundreds of aeroclubs were organized, often attached to high schools, to provide the youth of Russia with semimilitary training in glider flight, simple aerodynamics, power-plant engineering, aircraft maintenance and navigation. This educational system has remained unique among the air-minded nations of the world, and it has given Soviet aviation a solid human base from which to draw its fliers, navigators, designers, engineers, technicians, and mechanics.

Decentralization

A five-year plan for the aircraft industry was announced in 1928. It marked a real step forward on the road toward the creation of genuine air power. As happens so often in Russia, accomplishments were not up to the level of planning. Progress was unsatisfactory, partly because TSAGI was overburdened as the central planning, designing, and managing authority. Quite undogmatic in fields where there are few doctrinal commitments, the Soviet government discovered that centralized planning was not, in the field of aviation, a particularly potent organizational device. Hence, by 1930, the government began to delegate and decentralize some of TSAGI's functions: within TSAGI, separate experimental and developmental departments for aerodynamics, engines, propellers, and hydroplanes were created; a separate aircraft trust for civil aviation was established; and a new institute, TSAMI, was given the complex and difficult task of engine development. In 1932, VIAM was set up as the central organization to supervise the quality of aircraft design and production. Under this organization, the Soviets produced their first generation of native military aircraft.[4]

It was not long before the Soviets discovered that decentralization at the top level was not adequate and that actually downright competition was needed to assure continuous progress. This was quite a discovery in a state dedicated to "planning." Individual enterprises were allowed to set up their own design staffs outside the TSAGI monopoly. A Communist equivalent of a "capitalist" competitive structure arose, and it was through this new and unusual setup that the Soviet Union's air force rose to world prominence.

Second Five Year Plan

The period of the Second Five Year Plan, 1933–39, coincided with Hitlerian and Japanese saber rattling: Probably the most dramatic result of this effort was that the Soviet Union managed to re-equip its air force by 1936. Unfortunately for the Soviets, the German *Luftwaffe* did not complete its rearmament program until about four years later. Soviet timing had been "out of phase," and when the war came to the Soviet Union, by the time of the German attack their air force was obsolescent.

Soviet failure was especially marked in the heavy bomber field. The Soviets had been the first to attempt the establishment of a heavy bomber force, and they certainly were the first to place the heavy bomber fleet under the direct orders of the highest command echelon, making it "independent" of ground commanders. While General A. N. Lapchinsky, the USSR's first top theoretician of air doctrine, envisaged the "air armies" for ground force support which were adopted in World War II, he was also a bomber advocate. As early as 1926, he was calling for the creation of a separate bombing force.[5] There was emerging a gradually stronger preference among many Soviet officers for bomber aviation. Under General Khripin, commander of the Soviet air forces during the mid-thirties, the proportion of heavy bombers to other aircraft became much higher than in other countries. Tupolev was building his TB-1, TB-2, and TB-3 series of bombers at this time.

Aircraft engines

During this period, too, the Soviet Air Force made significant progress in the important field of aircraft engines. At the outbreak of the Spanish Civil War, Soviet aircraft still were powered by crude copies of French Lorraines, U. S. Wright Cyclones, French Gnome-Rhones, and Hispano-Suizas. To overcome this dependence, a few promising native designs were standardized and improved systematically. The Soviets learned to build a strictly limited number of engines well and fitted these to bomber, fighter, and reconnaissance aircraft. At the same time—if we are to believe sources such as the noted rocket expert Willy Ley, Asher Lee, and Colonel Tokaev, a former officer of the Soviet Air Force—rocket research got under way within the Soviet Union. By 1937, TSAGI had established rocket development centers in Moscow, Leningrad, and Kazan. On a visit before World War II, Hermann Oberth, the "father" of German rocketry, found a thriving rocket research industry in the Soviet Union.[6]

---

[4] It is interesting to note that at approximately the same time the U. S. and Great Britain were experiencing great difficulties with their aeronautical organization, and particularly with aero-engine development. The American solution was the establishment of the *National Advisory Committee for Aeronautics,* better known as NACA, which, in some ways, is a parallel to TSAGI.

[5] Raymond Garthoff, *Soviet Military Doctrine* (Glencoe, Ill.: The Free Press, 1953), p. 343.

[6] Asher Lee, *op cit. supra* (note 1), p. 205.

PURGE

But at this point a catastrophe happened: the gradual growth of Soviet air power was disrupted significantly when Stalin purged some of his best air generals and dismissed some of the key aeronautical designers. There are indications that this reduction in influence of the Soviet "air enthusiasts" was caused partly by the purge craze and partly by a misreading of the tactical lessons learned from the Spanish Civil War, a misreading similar to that which was applied to Soviet tanks and which paralleled no less fallacious deductions made by Western strategists.

As a result, the Soviet Union lost its most effective and experienced bomber advocates. General Khripin was purged. Tupolev was temporarily shelved, and his advanced TB-6 and TB-7 heavy-bomber prototypes were delayed, arriving too late for World War II. The purge trials also took a heavy toll of the USSR's rocket technicians. The development of parachute forces and civil aviation[7] suffered similar retrogression, and only fighter aviation enjoyed continued high level support.

WORLD WAR II

At the time when Hitler got ready for his attack, the Soviet Union was producing over a thousand military aircraft per month. It had an operational combat force of well over six thousand combat aircraft, probably at that time the world's largest air establishment. The Soviet air force was supported by a large industrial base of aircraft and component factories, geographically dispersed in depth and operated by competent managers, engineers, and technicians. It was soundly organized into armies, divisions, and regiments, and designed as tactical air force with the primary mission of supporting surface battle. Lieutenant General A. Galland, one of the *Luftwaffe's* World War II aces, recently commented that as an "integral part of the Red Army," the Soviet Air Force "was perhaps better organized and suited to its purpose and better employed in action than the Luftwaffe. . . . We never managed to prevent the Red Air Force from doing this [giving support to Army] despite our superiority."[8] Many marked deficiencies remained, however. Relatively little progress had been made in electronics, radio aids, and navigational devices; fighter and reconnaissance aviation was still below German standards; and numbers and effectiveness of bombers did not meet requirements at all.

Many volumes could be written about Soviet air operations in World War II. The organization of a strategic bomber force as the core of future Soviet air power was initiated in the spring of 1942.[9] General A. Golovanov, a Civil Air flier, was placed in command of the Long Range Air Force. While its showing in the war was extremely poor, the Long Range Air Force nevertheless constituted an important beginning. Independent even of the Soviet Air Force command, it was placed directly under the Ministry of Defense. This diversion of effort in the midst of a deadly war provides an interesting clue to Soviet intentions.

With Malenkov as an expediter, aircraft production was increased greatly.

---

[7] This disorganization of Soviet transport aviation was overcome to a certain extent when Boris Lusinov, a Soviet engineer, was able after two years of study at the Douglas aircraft plant in Long Beach, California, to duplicate and produce in large numbers the famous Douglas DC-3 (C-47) twin-engine transport.

[8] Adolf Galland, *The First and the Last: The Rise and Fall of the German Fighter Forces, 1938-1945* (New York: Henry Holt & Co., 1954), p. 80.

[9] A parallel decision was made in the field of armored warfare, the results of which became noticeable by 1944 and 1945.

The industrial base again was expanded and extended in depth, hundreds of thousands of technicians were trained, aircraft performance was improved, the aerial methods of the Allies were studied, and extensive battle experience was gained. But perhaps the greatest advantage which accrued to the Soviet high command was that it learned how to handle large numbers of aircraft. Despite heavy aircraft losses and the wholesale destruction of aeronautical factories which occurred during the early years of the war, the Soviet Air Force by 1944 was putting as many as 6,000 combat planes into the air. By the end of the war, the Soviets were producing over 3,000 combat aircraft per month and were manning 19 air armies comprising more than 600 combat regiments.

However, due to the loss of tempo suffered from earlier mistakes, support and fighter aviation dominated air operations throughout the war and relatively little experience was obtained in long-range strikes. Despite strenuous efforts, only insignificant progress was made in the all-important field of electronics. Nevertheless, defeated in 1941, the Soviet Air Force was a victor in 1945. The Soviet Union had become a regional, although not yet a global, air power.

Yet by 1945–46, the Soviet Air Force was getting ready to embark on the most revolutionary growth the history of air power has seen to date.

SOVIET DOCTRINE

What are the Soviet doctrines on the use of air power? In the field of armored warfare there has occurred a similar doctrinal dispute: Is the tank an infantry support or an independent "strategic" (or as the Germans and Russians call it, "operational") weapon? The Soviets made a Solomonic decision: The tank is *both*. Hence they allotted a tank regiment and a mobile gun detachment to each infantry division, and established several heavy-tank regiments, to be used as reserves and reinforcements of infantry in battle. But ***in addition,*** they created two types of armored divisions especially designed for "operational" missions: large-scale attack and breakthrough, pursuit and deep penetration.[10]

Needless to say, the adoption of such a double-barreled doctrine requires a huge industrial and training effort which, with respect to tanks, the Soviets apparently were able to undertake. The question is, Can a similar effort be successful in the far more exacting field of aircraft production? Perhaps not. But it is a fair presumption that a parallel doctrine guides the destiny of Soviet military aviation: bomber aircraft are needed *both* to support ground forces *and* to carry out independent strategic operations.

By the end of World War II, the strategic requirements of the Soviet Union had changed vastly. The enemy nearby had been eliminated; but a new "threat"—of a more illusionary type, to be sure—was developing at a distance of 5,000 miles. It is hard to see how the Soviets could have failed to conclude that the development of a strong and genuinely global air capability must become the highest priority objective of their military preparations. In any event, ever since 1946 or so, they have acted as though, indeed, such has been their objective. There exists a wealth of evidence to confirm the nature of the Soviet response to the new strategic challenge.

PRESENT SOVIET AIR POWER

The results were not slow in coming. Modern jet engines were developed;

---

[10] N. Galai, "Geschichte der sowjetischen Panzerwaffe," *Ost-Probleme,* January 21, 1955, p. 107.

medium and possibly heavy bombers were built; large air defense forces were set up; a massive and capable electronics industry came into being, thanks largely, presumably, to German assistance; and research work on guided missiles, both long- and short-range, was initiated. Since 1950 or so, the Soviet Air Force has displayed one modern aircraft after the other. There are disturbing signs that the Soviets are making good—and accelerating—progress toward the attainment of their goal. As of today, air power has rejuvenated Russian imperialism and re-created it as a global threat.

What are the expectations for the future? The story of Soviet aviation is not one of technological genius. The Russians still are only competent imitators, and they have only a few inventive pioneers. But their strength lies in their uncanny ability to utilize technological advances made in other countries, to carry on in their own plodding way systematic research with endurance and singleness of purpose, to devise solutions of expediency, and to design matériel which is well adapted to the general backwardness of the country. They aim to use sturdy and simple weapons which can be produced in large numbers and be maintained without difficulty.

SOVIET AERONAUTICAL DESIGNERS AND ENGINEERS

Air power is created by the application of brains and resourcefulness rather than only by industrial productivities. Soviet aviation is the child of a small group of aircraft designers and builders. From the early days of the Soviet regime, the aeronautical engineers, designers, and industrialists have been perhaps the most influential professional group within the Soviet Union. Their longevity attests to their political influence. By comparison with their American and British colleagues, they exercise enormously more authority. All of them hold high military rank coupled with substantial seniority. Many have had direct access to the Politburo. Together, they ensure considerable continuity and enviable coordination between political and military strategy, and between strategy and industrial production. They wear the triple hat of the scientist, the industrialist, and the general officer—a redoubtable combination of power. And even this description does not quite explain their position. These men compete against each other, and their competitive ardor is stimulated by a system of incentives far more "persuasive" than any in the West. The incentive comes in the form of wealth, living standards, status privileges, rank, and power, as well as—in the case of failure—demotion, punishment, and ruin.

Let us look at some of these capitalistic soldiers of Communism. Lieutenant General Tupolev is the leading Soviet designer, a topflight scientist and also the happy survivor of two purges. He has operated as the brain of TSAGI —except for short periods of disgrace— as main contact with German aviation specialists, and as a proponent of heavy bombers. He designed his first bomber in 1922 and since then allegedly has been responsible for over thirty aircraft designs, mostly in the bomber class. Under his direction, the Soviets reproduced the United States B-29 medium bombers in record time.[11] This duplicate, the well-known TU-4, is presently the main weapon of the Soviet Long Range Air Force. But Tupolev's career is not over yet: his staff reportedly designed the large jet bombers displayed publicly in Moscow in 1954.

---

[11] The equally rapid reproduction of German and British jet engines speaks highly of the effectiveness (though not the originality) of Soviet industrial engineering.

Ilyushin

Sergei Vladimirovich Ilyushin is Tupolev's counterpart in the light bomber field. He is best known as the designer and builder of what presently is the numerically largest fleet of light jet bombers, the IL-28, which presumably can reach most targets on the European continent, and in Japan and Alaska. He is a strong partisan of simple and rugged aircraft designs. (Having begun his career as an aircraft mechanic, he learned how to read and write when he was eighteen, while a common laborer at the Moscow airdrome.) As commanding officer of TSAGI's experimental factory, he is reported to have tested almost every Soviet aircraft when it was still in the experimental stage. He designed the IL-4 twin-engine bomber, the backbone of Soviet bomber aviation during World War II. But his greatest fame rests on his development of the IL-2, better known as the *Stormovik,* the well-nigh indestructible scourge of the German army. Allegedly, this design resulted from a dispute with N. N. Polikarpov and other "white-collar designers" who were unable to produce a suitable ground support plane. Challenged to do better, Ilyushin is said to have designed the *Stormovik* in three weeks. His air-power doctrine may be gleaned from a speech which he made in 1942, and which Asher Lee quoted as follows: "We have always thought that the main role of aviation was the support of ground forces." This "line" of the Ilyushin school is, almost certainly, at variance with the line of the Tupolev school. There is nothing "monolithic" about Soviet aviation. The USSR's obsession with rugged, simple, and easily produced and maintained aircraft becomes more understandable when viewed in the light of Ilyushin's career and the maintenance environment of Soviet aviation. It also cautions against measuring Soviet performance against United States standards.

MIG's

Together with Mikhail I. Gurevich, one of Russia's outstanding mathematicians and structural engineers, General Artem I. Mikoyan (brother of the First Deputy Prime Minister, Anastas I. Mikoyan) designed the well-known MIG group of fighters. The progression has gone from the MIG-1 (1940) via the MIG-5 (1944) and the MIG-9 (1945) to the powerful MIG-15 of Korean notoriety, and thence presumably will go to even better models. The MIG-15 is, historically, one of the most successful airplanes and, by and large, not inferior in performance to some of the best American fighters. The late General Hoyt S. Vandenberg, then Chief of Staff of USAF, commented in 1951 that the MIG's engine "is superior to any jet engine we have today in operational combat planes."

Lavochkin

Semyon A. Lavochkin participated in producing, together with Gudkov and Gorbunov, the LaGG series of fighters which were used during World War II. After the war, Lavochkin produced a string of piston and jet fighters and at present is reported to be working on an all-weather interceptor. His great strength lies in his unusual ability to select and manage design teams. Among German repatriates, he is noted for his successes in picking their brains.

Yakovlev

General Aleksander Yakovlev is fairly well known in Western aeronautical circles as a deputy minister of aircraft production and as designer of the YAK series of piston and jet fighters.

Ideology

These, then, are some of the typical leaders of Soviet military aeronautics. Each top designer controls, directs, and manages large competitive complexes of aircraft factories and laboratories. As such, they are without counterpart anywhere in the aircraft industries of the free world. Lest they be regarded as "pure and nonpolitical" scientists, it should be remembered that "there is not a single aeronautical engineer or specialist in the USSR who has not had a radical Marxist-Leninist-Stalinist grounding. Here is the fundamental difference between Western and Soviet experts."[12] The Soviet regime has treated its aeronautical elite with kid gloves. No wonder that these designers in general have been utterly dedicated to the aggressive aims of Soviet Communism—as well as to the future of Russian aviation.

THE NEW GENERATION

But these men are growing old now. Under their tutelage, a new generation of designers is emerging. Hence, the most significant question referring to the future of Soviet aviation is this: Will the Soviet regime treat the up-and-coming designers as it has treated the present generation? Will it continue to deviate from its normal behavior pattern? Will it allow them freedom of action and again place them at the top of the privileged classes in Soviet society?

It is too early to answer this question. There is no doubt, however, that the Soviet government has recognized the fact that technological superiority in the air rests, in the last analysis, on designers and engineers as its foundation. Hence, technological training has been vastly accelerated and has become one of the unique long-term elements of strength in Soviet aviation. While the United States has been turning out far more university *graduates,* the Soviets between 1928 and 1953 have graduated 150,000 *more engineers* than the United States. In 1928, the Soviets had some 26 institutions offering engineering training. Today, there are approximately 175 schools offering ***training in engineering exclusively.*** Their enrollment numbers about 300,000 students. By comparison, some 210 United States colleges offer engineering courses with an enrollment of about 194,000 students.

Progress in Soviet aeronautical engineering training is no less sobering. Since 1951, the Soviets have been graduating at least 1,200 to 1,400 aeronautical engineers per year. In 1954, the United States graduated 645 aeronautical engineers. The quality of Soviet instruction is very high by United States standards: the students get considerably more education in the general sciences, and especially in mathematics. Morale within the educational system is very high, too, owing to considerable incentives in the form of honors, better pay, better treatment, and greater promise for a future career with substantial rewards.[13]

POLITICAL LEADERSHIP

Behind the designers and scientists, however, stands a political leadership which gives unstinting attention to the development of military aviation. One can hardly imagine members of the

---

[12] G. A. Tokaev, *op. cit. supra* (note 3), p 194.

[13] Nicholas DeWitt, "Russia Threatens U. S. Engineering Leadership," *Aviation Age,* February 1955, pp. 17–21.

United States or British cabinets holding long meetings to discuss aircraft and missile research, development, and production. Yet there is much evidence that for many years Russia's top rulers have assumed just such a direct role in support of aeronautical developments.

An ex-colonel of the Soviet Air Force —whom Sir David Kelly, formerly British Ambassador in Moscow, calls "the most distinguished of the 'Defectors' who have sought refuge in the West" —cites an interesting example of the Kremlin's direct interest in military aviation. G. A. Tokaev, formerly Chief of the Aerodynamics Laboratory of the Moscow Military Air Academy, was called to the Kremlin from his post in Berlin on April 13, 1947, in order to discuss the exploitation of German aeronautical science. Present were Stalin himself, Malenkov, Bulganin, Voznesensky, Vershinin (then Chief of the Soviet Air Forces), Artem Mikoyan, and Major General Lukin (Deputy Minister of Aviation Industry). Tokaev reports that Malenkov remarked to General Khrunichev:

> "I was in Noginsk the other day and saw them trying to make V-2's," said Malenkov. "I was not impressed. The work is going very slowly, and anyway, the flying bomb is an outmoded weapon now. . . . We must complete it, but not to the detriment of work on more modern weapons. . . . The point is that the V-2 is good for 400 kilometers, and no more. And after all, we have no intention of making war on Poland. Our vital need is for machines which can fly across oceans."[14]

CONCLUSION

What conclusion must we draw from the widely known facts of Soviet air power development? Simply this: The major threat to our security is coming from the air. As Soviet atomic air power continues to grow, the United States and its political institutions are in ever greater jeopardy. We can ill afford to disregard this most deadly threat in our history.

---

[14] G. A. Tokaev, *Stalin Means War* (London: George Weidenfeld and Nicolson, 1951), p. 104.

SOURCES

Books

Arnold, H. H. *Global Mission.* New York: Harper & Brothers, 1949.

Churchill, Winston S. *The Grand Alliance* (Boston: Houghton Mifflin Company, 1951), esp pp. 361, 378.

Ely, Louis B. *The Red Army Today.* Harrisburg: Military Service Publishing Co., 1949.

Fainsod, Merle. *How Russia is Ruled* (Cambridge, Mass.: Harvard University Press, 1953), Chap. 14.

Finletter, Thomas K. *Power and Policy: U. S. Foreign Policy and Military Power in the Hydrogen Age* (New York: Harcourt, Brace and Company, 1954), esp. pp. 23–29, 296–98.

Harris, Sir Arthur. *Bomber Offensive* (New York: The Macmillan Co., 1947), esp. p. 53.

Kerr, Walter. *The Russian Army: Its Men, Its Leaders and Its Battles.* New York: Alfred A. Knopf, 1944.

Lee, Asher. "Communist Air Forces," *Brassey's Annual: The Armed Forces Year-Book* (New York: The Macmillan Co., 1954).

Liddell-Hart, B. H. *The German Generals Talk.* New York: William Morrow and Co., 1948.

Menken, Jules. "Soviet Policy and War," *Brassey's Annual* (New York: The Macmillan Co., 1954).

Schlaifer, R. and S. D. Heron. *Development of Aircraft Engines and Fuels.* Boston: Graduate School of Business Administration, 1950.

Periodicals

American Aviation, January 17, 1955.

Aviation Age, July 1951; February, March, April, and October 1952; January, February, March, May, June, August, September, and October 1953; September 1954; and February 1955.

Aviation Week, August 1942; March 2 and October 26, 1953; May 24, 1954.

Flying, October 1953 and January 1955.

Naval Aviation News, October 1954.

Newsweek, August 17, 1953, August 23, 1954.

Science Digest, May 1953.

Ramsay D. Potts, Jr., Washington, D. C., is an attorney, a colonel in the Air Force Reserve, a member of the Hoover Commission Advisory Committee on Department of Defense Passenger Transportation, and president of Independent Military Air Transport Association, a commercial group of air carriers specializing in airlift for the military services. During World War II he served as squadron and group commander of heavy bombardment units and as director of bombing operations in the Eighth Air Force. Later he became chief of staff of the Military Analysis Division of the United States Strategic Bombing Survey. Mr. Potts's military and government career included a tour of duty as executive officer and special assistant to Secretaries of the Air Force W. S. Symington and T. K. Finletter.

A Steel Ring for the Iron Curtain: An Appraisal of Air Power in Other Nations

By EDWARD W. S. HULL

AIR power today is essential. It is a weapon which no one wants to use but which must always be ready for instant use. It is not preventive war but preventive mobilization. Directly, it does nobody any good. But indirectly, history may later record it as the guarantor of peace, the policy and the power that prevented the last war between men—the war of massive self-destruction—from ever occurring. Air power is the focal point of a counterbalancing power complex designed to force into peaceful accommodation a world sharply divided.

The current mission of Western air power is to make prohibitive to an aggressor the cost of attack. Its potential is military. It means ability to hit back hard in any local wars that break out, getting and holding local air superiority. But basically it means constant readiness to meet nuclear warfare by immediate counterattack in kind.

Western air power is built around the following:

The United States Strategic Air Command—over a thousand high-speed, high-altitude long-range jet bombers.

The incipient British Strategic Bomber Command.

A nuclear arsenal capable of destroying every military target in Russia within thirty days.

High-speed A-bomb-carrying F-84's based in Europe and the Far East.

A world-wide system of over two hundred air bases in addition to those within the United States.

More and more interceptor, fighter-bomber, transport, and reconnaissance squadrons.

An elaborate network of communications and support facilities in nearly every country of the free world.

A combined aircraft industry of vast and growing capacities.

It is not a paper plan. It is an existing, working complex—a gun that is loaded, cocked, and aimed, ready to fire, should Russia pull the trigger. For, in the final analysis, the decision that controls the trigger finger will be made in the Kremlin or Peiping, not in the White House or Whitehall.

The basic assessment of air power in other nations is this: The current state of readiness would not have been possible without their consent and co-operation. To build preventive air power from the resources—geographic, economic, and human—of the United States alone would be impossible.

NETWORK OF BASES

The crux of the West's preventive strategic concept lies in the global network of bases. Today, atom bombers by the hundreds can attack any part of Russia simultaneously from all points of the compass, taking off from the United States, Greenland, Britain, North Africa, Okinawa. Over target, if low fuel supplies preclude returning to base, they can keep on going to friendly airfields on the other side.

Not only is this system preventive in the simple enormity of its threat. In addition, the more A-bomb bases there are in the West, the bigger the effort needed to knock them out. Russia would not launch an atomic attack on the West's cities and industries without first trying to prevent retaliation.

As Russia knows from the chess her people play so well, the West also has the advantage of position. Russia is a single target, albeit a large one. She can be hit from all directions. She can attack the United States from only one.

To strike at United States industry, Red aircraft would have to fly thousands of miles across the polar cap and northern Canada even to reach the United States border. They would face the possibility of detection and interception all the way. Innermost Russia is a maximum of 1,500 miles from her nearest boundary. Most industrial centers are much closer. Her only buffers are the thin line of Eastern Europe and the bulge of China. Aerially, most of her perimeter is wide open. Her detection and interception problems are immense; those of the West, relatively easier. It is easier to watch a single point than it is to watch the whole world.

Outside of the United States and Canada, free world air power is strongest in West Europe. Under the North Atlantic Treaty Organization, it is the most highly integrated. It is the best equipped, is spending more of its own money, has received the largest share of American aid, and has the greatest resources of industry and manpower. It is also an area that is very conscious of the danger that lies to the East.

NATO

Including North America, NATO covers some 400 million people, and nearly a quarter of the world's land and sea area; it ranges across the Atlantic to Iceland and Norway, down through West Europe and North Africa, and around to Turkey. The European line of defense alone is 4,000 miles long. It includes 200 million people, a dozen different languages, as many different sets of national customs and local political problems. Yet within five years, NATO has been built into a highly efficient fighting alliance, with the first emphasis on air power.

All told, over 5,000 fighters, fighter-bombers, light bombers, and reconnaissance and transport aircraft are available to NATO. Some 4,000 are specifically assigned, under direct NATO command. These totals do not include the 200-odd United States Strategic Air Command B-47's operating from Britain and North Africa. Nearly all NATO's front-line aircraft are jets, including over 2,000 subsonic F-84 Thunderjets, over 1,000 transonic F-86 Sabers, growing numbers of British-made Hunter fighters and Valiant bombers, about 600 twin-jet Canberras, over 400 French-made Ouragan and Mystère fighters, as well as obsolescent Meteors, Vampires, and Venom fighters.

On the ground to support these aircraft are eighty new bases built to NATO requirements with 7,000-foot runways, as well as eighty more old bases brought up to NATO standards. Of the 160, most were built jointly with common "infrastructure" (term for NATO support facilities) money to which all fourteen member nations contribute proportionate shares. About three dozen were built specifically by the United States, Britain, and France.

Deficiencies

In recent NATO exercises, deficiencies have shown up mainly in communications, modern air-power logistics, air transport, and quick achievement of air superiority. These troubles were not unexpected nor are they basic flaws.

The communications problem is largely mechanical. Too much reliance had to be placed on civilian telephone systems and jammable radio circuits. The remedy: a line-of-sight microwave network now being built which obviates the need for telephone wires, precludes tapping and jamming, and minimizes the likelihood of sabotage.

Logistical troubles stem from changing concepts. To keep fuel flowing to NATO's jets—one 75-plane F-84 wing in operation consumes 100,000 gallons a day—nearly 4,000 miles of pipeline, pumping stations, and tank farms have been built.

But there is a growing body of opinion that, in the Age of the Atom, an increasing amount of supplies, if not all, should be airborne. Part of NATO's air emphasis is on the ability of ground support, interceptor, and bomber squadrons to move from one base to another, hardly missing a day's operations. That takes air transport and lots of it—not trucks, trains, and ships.

Only the United States has a large military air transport system. Though some C-119's are occasionally lent to Britain, for paratroopers' practice, this lift is assigned primarily to United States forces.

Actually, 100 per cent air mobility is an ideal goal rather than a practical expectancy. It is certainly not a formal NATO target at present. Efforts are being made, however, to raise abilities above present levels.

Air bases, communications, radar networks, pipelines, and so forth (but not transport aircraft) are all part of the infrastructure program. This has already cost close to two billion dollars, with the United States paying 55 per cent and other NATO countries the rest. Total European defense expenditures, 1949 through 1954, top forty billion dollars. The annual rate has tripled. The comparable United States total is about 200 billion dollars.

It is a statistical fact that in a European war, the biggest air power problem would be to achieve air superiority. It is a weakness that can only be remedied by more and better aircraft. The present total is too low, and too many of that total are obsolete. Both volume and quality, however, are rising.

Military co-operation

An important factor in West European air power is the relative smoothness and ease with which the different contingents work together. Obviously so many different nationalities cannot be developed into a flawless machine overnight. Military co-operation in the field is still far from perfect. But many of the men working together today fought together in World War II, Korea, and Indochina. Techniques and procedures are being standardized. There is the basic knowledge that "we've got to work together." And, as a result, in the air at least, the fourteen NATO countries work as an effective fighting entity.

Planes in combat readiness

With the exceptions noted above and the fact that Europe's aircraft production is still too low, NATO's general air power level is good. There are 185 tactical air squadrons deployed along the Eastern front. They are in combat readiness both to intercept and to give close ground support. Most aircraft are jets, but not all are the latest models. Not all are a match for the Russian MIG-15 and its successors. But the standard of air matériel rises daily. Once Europe's aircraft industry, particularly Britain's, finds its pace, the rate of improvement will accelerate.

European production

Right now the bulk of first-line aircraft are made and/or designed in the United States. But efforts are being made to make Europe more self-sufficient. Some F-84 parts and engines are being made in Europe. There are assembly plants in Italy, Belgium, and Holland. The Dutch are tooling for full-scale F-84 production. Britain's Hunter seems free of bugs at last. Performance of this aircraft compares favorably with both the United States F-86 Saber and the Russian MIG-15, but it is appearing in squadrons four years later. Earlier this year, total orders for the Hunter came to only about 1,500, including Royal Air Force orders, 120 for Sweden, and about 1,000 for NATO forces, the latter partly paid for by the United States. Most orders are to be filled by the three production lines in Britain; the rest by two lines in Holland and Belgium.

About 600 Canberras of all types are already in service as high-speed light bombers, night interdicters, and reconnaissance planes. More are on order abroad and others are being built under license in the United States. As a light bomber its fighting ceiling is 45,000 feet; in reconnaissance roles, 45,000 to 50,000.

In France, Mystère II's and IV-A's are both in production for the French Air Force, but the order is limited to 350. The IV-A is a 700-miles-per-hour, 40,000-foot interceptor. It carries two 30-millimeter guns and fifty-five internally mounted rockets, besides thirty-eight rockets slung in two wing pods (or two 500-pound bombs for close support work) and two wing-mounted fuel tanks. France has completed an order for 350 jet Ouragan MD-450's. For an aircraft industry that hardly existed in 1945, this is not a bad record.

However, compared to the number of prototypes that have been made, few European designs are in operational production. West Europe is far from building aircraft in sufficient volume even to keep current forces up to date, much less to effect an expansion. It is a major weakness. The big job of NATO's aircraft industry is to build preventive strength now, not fighting strength after a war has started. For the chances are that either the war would be over before production got rolling or the industry would be knocked out in the first few days . . . probably both.

NATO's light fighter-bomber design competition is also aimed at getting Europe's aircraft industry out of the doldrums. It calls for a fast jet aircraft with an operational weight of less than 8,000 pounds. It must be able to fight in the same ring with today's heavies. Above all it must be simple—simple to fly, simple to maintain, and simple to build with labor and machinery already in being. It should also be able to double as an emergency interceptor. If the program works out, it could be the answer. But evaluation, design finalization, spreading of contracts through many countries, all take time. Any immediate solution must come from getting current models into production.

Britain

The largest single contribution to Western air power outside the United States and Canada comes from Britain. This is owing partly to the fact that she came out of World War II with a large air force and supporting industrial capacity very much intact. It is also owing to the fact that she has been able to take her postwar responsibilities more seriously than some others.

Since 1948, the Royal Air Force has boosted its strength from under a thousand to over five thousand planes of all types. RAF manpower now totals 270,000. Included in this aerial line-up are 375 Canadian and about 100 United States–supplied Sabers. Most of her equipment is British made, though old. Until the Hunter reached squadron service, there was not a British aircraft in operation to match either the Saber or the MIG. Much of the RAF's material is still "second string." Supersonic fighters with capabilities of over 50,000 feet are not even near production.

Original RAF plans called for over a thousand Hunters and Swifts to be in operational service by this June. There are perhaps three hundred Hunters and no Swifts.

All told, Britain has half a dozen fighter and fighter-bomber designs with impressive subsonic performance claims, either as prototypes or struggling through early production stages. There is also one prototype fighter, the English Electric P-1, that has gone supersonic in straight and level flight. England has three V-class long-range atomic bombers, the delta-wing Vulcan, the Victor, and the Valiant. Only the Valiant is in operational production.

Britain's NATO contribution on the Continent along with Belgian and Dutch units is the Second Allied Tactical Air Force, equipped largely with Sabers and Venoms. Her radar network is ahead of schedule. And though nothing is yet in operational production, work on air-to-air and ground-to-air missiles shows signs of catching up.

By present-day standards, there is virtually no British military air transport command. There are no plans for either the massive movement of heavily armed ground forces or for materially improving the air mobility of RAF squadrons. Whitehall does, however, place some stress on the rapid air movement of lightly armed troops to any part of the Commonwealth and has ordered V-1,000 jet military transports for this purpose.

There is also a British effort to build a Strategic Bomber Command. The force now bearing that name is equipped with Canberras, and British-made nuclear weapons have been going into munitions dumps for about a year. For certain kinds of missions (tactical, mostly), it is an important and useful force, but right now it is only the shell of a strategic air force.

It does not have the right planes, or training. It also lacks many of the necessary supporting facilities for long-range strategic bombing. Britain first developed in-flight refueling, but she has no tanker squadrons nor are any in sight. Neither are there enough of the little black boxes, the radar so necessary to long-range high-altitude bombing.

There are now perhaps two squadrons (22 aircraft) of Valiants in service. If the aircraft existed in large numbers and were supplied with the same facilities, combat equipment, crew training, experience, and so forth, it would probably be a better aircraft than the B-47. But they are not, and supplying them takes much time and money. Suggestions have been made that Britain's efforts might be better directed towards building up its tactical power, or at least by building proven United States bombers under license.

British aircraft industry potential is considerable. At peak World War II production in 1944, British factories turned out 26,461 aircraft, of which 5,507 were heavy bombers, 2,396 medium bombers, and 13,669 light bombers and fighters for the RAF and Navy. It added up to 208 million pounds of airframe weight, as compared to 9 million in 1938. In 1953, the total was 15 million pounds. Employment in the industry today is 230,000.

There are a number of reasons—some more important than others—why output is so low. One certainly relates to procurement methods. All buying is done by the Ministry of Supply. To date, the Air Ministry has had no direct control over aircraft contracts. It has not been able to halt a program that has gone sour, as it would like to have done much earlier in the case of the

Swift. This aircraft should have been in service over a year ago. In the United States its troubles would have been righted within a reasonable period or the contract canceled. It is one reason Britain's Prime Minister, Sir Winston Churchill, seriously considered reestablishing the wartime Ministry of Aircraft Production.

Other problems include:

The reluctance (due perhaps to pride) of some British manufacturers to accept technical advice and help from the United States on specific aerodynamic problems. The Swift interceptor and the Javelin all-weather fighter are both cases in point.

Too many different types of aircraft under development and too few prototypes of each.

The practice of placing production orders before the aircraft is proven.

An apparent unwillingness to freeze design at appropriate intervals in order to go into production.

Perhaps, also, there may be too much emphasis on aircraft for commercial export, though this can be strongly supported for economic reasons.

None of these reasons apply across the board, nor do all ever apply in one instance. But it is an admitted fact that the British aircraft industry has not been doing the job it could. Its contribution to Western air power is still below par. However, succeeding months should see gradual improvement.

Britain's lead in jet-engine design and development seems safe for a few years yet. But the United States will continue to supply volume production for use in aircraft "today" and "tomorrow."

In the long run, the most dramatic development in British air power is the abandonment of the balanced forces concept, with the scales tipping in favor of the RAF. For an island country that has been for centuries a major sea power, the change poses political problems. But the conscious decision has been taken, and succeeding budgets will see more money for air power, at the expense of other forces if need be.

France

France as an air power suffers primarily from the fact that with the end of the war there was no French Air Force as such. What is more important, there was virtually no aircraft industry. And what there was had to ask Britain for a glossary of terms before it could even talk in the jet age. It was a case of starting from scratch. Its growth has not been helped by the failure of the French government, largely through force of circumstances, to appropriate enough procurement money to warrant going into efficient production. Winning NATO's light fighter competition could do much to put the industry on its feet.

France has not yet watered down her effort by trying to build a strategic bomber force.

In the French Air Force, there are fewer than 2,000 first-line planes, of which 1,200 are contributed to NATO; between 150 and 200 are transports and the rest miscellaneous. France's transport command gained valuable experience in Indochina.

Her main contribution to Western air strength is bases—supplying the sites and helping to build and man them. There are forty-five NATO air bases in France alone. The four or five assigned to the United States Strategic Air Command in North Africa are of vital importance.

Other air forces in Europe taken individually are not impressive. Most of the countries are small. But collected together as they are under NATO they make a good showing.

West Germany

The real unknown, of course, is West Germany. Now admitted to NATO and urged to rearm, she will certainly supersede France as an air power and may, in time, come close to matching Britain. Officially, the West German air rearmament target is 1,200 fighters, 300 transports, reconnaissance aircraft, helicopters, and so forth, but no strategic bombers. However, as the mass of German industry, technical know-how, and trained military manpower bring the program close to these levels, there is repeated historical basis for assuming the target will be expanded. Basic plans were laid for a new German Air Force even before French ratification of the London agreements. The United States is supplying many of the aircraft to start. Development will be rapid, and the present program completed in early 1957.

Other NATO countries

The rest of NATO Europe, eight countries—the Netherlands, Belgium, Norway, Denmark, Italy, Greece, Turkey, and Portugal—account for half the NATO bases and half the assigned air strength, some 2,000 aircraft. These break down into about 300 F-86's, about 1,200 F-84's, and the rest older models. Perhaps another 1,000, though not assigned, are available to West European air defense and co-ordinate well with regular forces during NATO war games.

Though none of these countries has reached the stage of developing a family of home-designed aircraft, several production lines for making foreign types—F-84's, Hunters, Vampires—have been set up and are convertible to later types as they become available. Also jet engines are being made under license, as well as a wide range of spare parts and components. Personnel of these air forces is about 140,000.

SWEDEN

Sweden, not in NATO, has 1,200 fighter aircraft, including many jets (mostly Swedish-built Vampires). She has Hunters on order, and deliveries of her own SAAB-32 Lensens have begun. Her aircraft and engine industry is small but efficient, and is working on a new supersonic fighter. Should Sweden be drawn into another war, this force, if not destroyed first, would almost certainly be fighting on the side of the West. Her defenses are spread too thinly, and alone she could not protect herself.

SPAIN

Spain's main contribution is four—perhaps more later—strategic bomber bases populated with United States B-47's and later types as they come into service. Spain now has little more than an "internal" air force, made up mostly of old World War II German aircraft. However, she does have over 2,000 trained pilots who could fly jets, which will probably be supplied by the United States.

THE EAST

From the Eastern reaches of NATO, on through Asia to Korea, Japan, Okinawa, and Australia, there is virtually no air power. There are various national units for handling local troubles, but nothing that could really be considered an important contribution to free world defense. United States aid and bases in Pakistan may make this country an important outpost, but this program, held up by procedural problems, is just starting.

Except for Middle Eastern oil, which is covered by NATO air power in Turkey and British units in the area, there are few strategic air targets worth Russia's efforts. And land assault is almost precluded by the severest mountain range in the world, which separates Russia from southern Asia all the way from Iran to China.

The West's Far Eastern air power is primarily from the United States, with well-equipped units stationed more or less permanently in Japan, Okinawa, Korea, and the Philippines.

Nationalist China's Air Force on Formosa is good for little more than hit-and-run raids along China's mainland coast and for harassing Red shipping. But there are about two thousand well-trained pilots, many with jet experience, whom modern United States jets could turn into a substantial force. They have been trained to United States Air Force standards. In a nonatomic war, the United States Seventh Fleet and its jet-manned aircraft carriers remain an important element.

Australia's Air Force is a peacetime operation, a small, highly trained, well-equipped nucleus that could be quickly brought to strength in an emergency. Much the same is true of her aircraft and engine industry. For a country with fewer than nine million people, Australia's effort is "up to standard." She has assembly lines working on small production orders of Avon-powered Sabers, Canberras, Vampires, and a number of jet engines. She developed on her own and has in production the Jindivik, a high subsonic medium-range pilotless aircraft. She is working on a delta-wing rocket—speed Mach 3—to intercept high-speed guided missiles. An important contribution is the rocket-testing station at Woomera, which is available to Britain. Another point is her isolation from the potential enemy; her factories and airfields would probably be the last to get hit in an atomic war.

Japan, like Germany, is still a potential air power. But that potential is great. She had one of the largest aircraft industries in the world. Contracts have already been signed with United States firms to build United States planes and engines under license. Her industry already has considerable experience in modern jets as a result of its repair and maintenance work on Allied aircraft during the fighting in Korea.

With her resources and manpower, she could build the third largest air power in the world, after the United States and Russia. It would take a lot of United States aid, however, as she has no raw materials of her own, and her balance of payments is precarious at best.

CANADA

Canada is an air power out of all proportion to its population of 14 million. It has twelve squadrons (300 F-86E Canadian-built Sabers) in Europe. It has contributed several hundred more to NATO as foreign aid. Its massive Northern wilderness is a vital element of North American defense. An extensive radar network is in being. Its air base program is moving at top speed. The high-performing CF-100 Canuck is Canadian designed and in volume production. On defense, the United States and Canada work together.

THE WEST AND RUSSIA

This, then, is the line-up in the West: a free world organized into a massive and growing display of air power—chinks, faults, and failings in the armor, but, over all, a formidable array. In terms of aircraft in combat units, the Reds have more: over 20,000 in Russia; 2,000 in East Europe; and another 2,000 in China. Most are tactical aircraft. The instance of jets is high and mounting. There are also large numbers of Il-28 twin-jet medium bombers, capable of carrying A-bombs over 1,800 miles.

Russian interest in strategic air power began almost as early as the West's. Development has been slower, but she does have about 700 Tu-4's (B-29 copies) and perhaps a couple of hundred Tu-200's, six-turboprop versions of the B-36. A four-engine turboprop bomber is also in production. She has at least one prototype of a four-jet swept-wing heavy bomber, with a total thrust of over 60,000 pounds, and swept-wing twin-jet bombers in squadron service. Late fighter models may be supersonic—the MIG-17, for example.

On the average, Russia's first-line aircraft probably perform just about as well as those in the West. But their operational availability appears to be lower; nor are they as well equipped with special combat gear. Her strategic air arm is no match for the West's either in volume or quality, but its ability to achieve some penetration to distant targets is a compulsory assumption. And "some" penetration with hydrogen bombs would be too much.

The Red aircraft industry has a tremendous capacity, though quality control in some important instances seems poor.

The West relies on quality, technological superiority in all phases of air power. Each aircraft, jammed full of armor, armament, electronics gear, skilled crews, and reliability under extreme conditions, stands a good chance of carrying out its mission. Authoritative opinion in Washington, London, and, apparently, Moscow is that these factors continue to maintain the air power balance in the West's favor, despite Red superiority in numbers.

Keeping this lead requires constant effort—tremendous expenditure on the best of technical manpower, research, industrial capacity, natural resources, and the lives of the men who, today, first fly tomorrow's service aircraft.

The future—peace or chaos—is man's choice. Within one hour of detecting Red bombers in free-world skies, the West's nuclear-armed strategic bombers would begin taking off from bases all over the world, hundreds of them, with one destination—Russia. Attacking Soviet aircraft would find the West's bases empty. No international conferences, not even a quick general staff meeting. The gun is loaded. It is as automatic as pushing a button. It could take even less to set it off; an accident, for example. An unavoidable risk.

This is the ability of the West. It is costly. It is unavoidable. For until the politics of reason finds the way to peace in the world, the politics of power is the only known means of a stalemate. The central force of that power today is air power.

Edward W S. Hull, London, is bureau chief of McGraw-Hill World News. Educated as a physicist, he was a pilot with the United States Marine Corps during World War II. He was for three years a correspondent in McGraw-Hill Washington News Bureau, specializing in raw materials, all forms of transport, and military budgeting. Prior to going to London just over a year ago, he was for three years associate editor of the Whaley-Eaton Service, and during his last year there edited the Foreign Letter.

The Psychological Impact of Air Power

By Lewis S. Thompson

MOST of us can chronicle the development of air power. Not always so apparent, however, are the changes that it has made in the communication of ideas, international commerce, geographical isolation, and the waging of war. Man is a creature of the earth, and his perception, limited by this narrow environment, tends to view the world in linear planes. Even the dramatic displacement by aircraft of armies and battleships as symbols of national power and prestige has become circumscribed by traditional habits and concepts of warfare. The technical evolution of air power has made it a factor in the economic, political, military, ideological, and social development of every nation. Its extreme flexibility, range, mobility, and speed as a means of transportation; its capability for rescue and communication operations; and its destructive power have added a new dimension to personal and national security. The world that once was measured in terms of land mass and seas should now be conceived in terms of a boundless, borderless air mass. The interaction of these concepts and forces has created the psychological impact of air power.

There is probably no word that has been more abused and confused than "psychological." Loosely it can be defined as dealing with the mind—as a thing perceived or experienced. While this is an almost all-embracing definition, in relation to the word "impact" we are defining our subject as the force communicated or perceived through the medium of air power. And by air power we mean the aggregate of men, aircraft, weapons, air bases, facilities, and the industrial and technical resources that sustain flight. In other words, air power is the ability of a nation to fly, and we are discussing this ability in terms of its influence on human behavior.

In the velocity of our projection into world affairs through the development of air power, the United States has made most of the natural mistakes to which we are entitled, both by our youth as a nation and our enthusiasm as a people. With the world rapidly shrinking in time and space, international differences have assumed a new significance and are almost as personal and immediate as family quarrels. Commercial and diplomatic relations that once were conducted in leisure are now consummated on a global basis in minutes or hours. With two competing industrial systems producing nuclear weapons of terrific lethality, a new timidity is introduced into world affairs. If the Communist bear should sneeze in Moscow, a *Gesundheit* echoes around the world. Even our concepts of personal security and property are disturbed by the frustrations and fears concerning an adequate defense against aerial attack. But before discussing the reactions to air power, let us examine some of the reasons why people act like people.

Basically all human behavior is governed by "natural laws." The first of these laws or principles is that the strongest motivating force of individuals is instinct—survival (either spiritual or personal), hunger, sex, and so forth. People are secondarily motivated by emotions—love, friendship, hate, fear, greed, and so forth, and only thirdly is man motivated by reason. Imposed upon and modifying this biological behavior, however, are the society in which an individual lives and the circumstances that surround a certain action. Human behavior is not haphazard and obstinate, but is generally systematic and purposeful: man attempts to maintain a state of equilibrium both internally and with his external environment. While this is an oversimplification of human behavior, it is in this framework that air power is particularly significant to our times.

The mere presence of a hostile aircraft is often conceived as a threat to the personal security of every individual in a community, and the emotional response to these weapons has often obscured reason and created distrust of United States motives or objectives. The presence of United States military forces overseas conflicts with the basic desire of the local population to control and direct their own destiny. In wartime these frictions are generally accepted as necessary to the accomplishment of a common goal. In peacetime this same mutuality of endeavor or interest must be established. Reason, which might be used to establish this community of interest, is often subordinated to prejudice and suspicion. It is these facts that often complicate understanding, but it is in consonance with these principles of human behavior that air operations must be planned and implemented.

Today we live in an age in which force has become the determining factor in international relations. Wars that once were considered a contest between professional groups and forces suddenly have completed the evolution to total war between civilizations. Air power has broken down cultural and national barriers and becomes increasingly important in everyday life. While air power is indivisible by peace or war, to identify the psychological impact of this technical revolution we have divided our subject into two parts: the impact of air power in warfare and its impact in times of peace. This arbitrary division should not be construed as making these psychological reactions mutually exclusive. The characteristics of one operation influence the other, and even the difference between peace and war has become almost academic in the current world crises.

DEVELOPING TECHNIQUES OF AERIAL WARFARE

The introduction of air power into warfare during World War I was in itself a psychological as well as a physical factor in the waging of war. While the role of airplanes in those early days was primarily that of a reconnaissance platform and an incidental propaganda delivery agent, these uses did lead to the development of new tactics and strategy in exercising military forces to achieve political objectives. Aircraft extended the range of firepower, exposed key secrets and secured vital intelligence, and forced the development of mobility, dispersion, and camouflage in conventional forces. Even at the initiation of war, air power exposed to attack all of the resources of a nation that make war possible.

During World War II, the tactics which had been largely just ideas became established facts. Air power's efficacy as a weapon system was dramatically proven. During this period air attacks became not only the concern of military commanders but of the people as a whole. Aerial warfare created an attitude of hopelessness and defeat as community life was disrupted, as health and welfare organizations collapsed, and as essential utilities and key economic services were destroyed. Air power became identified as the *only* force that could attack and destroy *all* of the weapons of warfare—in the air, on land, or at sea. It could destroy the industrial resources that sustain an enemy's war-making capacity. This flexibility of air power made it the dominant force in modern warfare.

As these tactics were refined, as aircraft increased their bomb loads and their range and speed, military strategists were developing the techniques to make aerial warfare a precision instrument of destruction. The concise formulation of objectives and the optimum employment of air power have made it one of the most rational and discriminate of military weapons. It is this development that has been largely unrecognized by the public. Haphazard, indiscriminate bombing is now recognized by military commanders as vandalism, extravagant of the most expensive resources of a nation and unprofitable in terms of the ultimate objective of war—peace. Aircraft are not employed to destroy a population but primarily to disarm a foe by destroying his industrial resources or his military forces in being. Killing is only incidental to the strategic purpose of air attack, not the objective. The claim that aerial warfare is inhuman and that the employment of atomic weapons is morally indefensible is without foundation in fact. With precise target selection and the instant ability to destroy the military, industrial, social, and psychological forces supporting war, aircraft and their atomic punch may well introduce a new humaneness into warfare—and a quick resolution of international conflicts. An emotional emphasis on the weapons of war should not distract us from the causes of war and should not be used to complicate the relations of military forces with the people they are designed to protect.

ANALYSIS OF PSYCHOLOGICAL EFFECTS

At the conclusion of World War II a detailed survey was made in Germany and Japan to analyze the psychological effects of aerial attack. While no attempt was made to formulate definitive conclusions, the United States Strategic Bombing Survey did establish the general pattern of reaction. One significant conclusion was that the psychological effect of the atomic attack on Hiroshima and Nagasaki did not differ in any substantial way from those produced by other types of bombing. In general, the reaction to bombing attacks followed this pattern: (1) temporary loss of inhibitory control, actions seeking survival but not particularly antisocial actions; (2) fear, emotional excitement, trauma induced by casualties; (3) anxiety produced by grief and personal loss; (4) worry produced by disruption of normal community life; (5) fear of repetition of attack; (6) motivation (within twenty-four hours after evacuation) to return to search for relatives, friends, and possessions; (7) survivor guilt; (8) apathy and/or resignation acquiescent acceptance of the inevitable consequences of war.

The primary reaction of all individuals to air attack was *fear*. In the atomic attacks on Japan that fear rarely led to unqualified terror, but the sheer horror, destruction, and suffering witnessed and experienced by the survivors had, surprisingly, a second reaction of admiration for the power and technical skill that produced such an awesome weapon. A third reaction, anger, was exhibited by only a small percentage of the survivors, and most of this anger was directed toward the regime for their failure to provide adequate warning or protection against such a disaster, and was not directed against the attacker.

Beside the psychological effect of the moral and material losses caused by aerial bombing and the variance caused by time (night or day) and intensity of attack, there are certain ancillary results from such operations that have a psychological influence. Among these are the following:

1. The destruction provides the opportunity for criminal acts and impairs the moral code to make it easier to commit them.

2. Under aerial attack the conditions for a strict enforcement of economic controls deteriorate rapidly. Money becomes less important as barter for essential goods increases. Living quarters have an inflated value. The disruption decreases the supply of consumer goods, increasing competition and prices for them. Loss of water, lights, and other utilities creates new economic needs and disrupts the economy.

3. People become jealous and suspicious of those who have not suffered an equal loss or deprivation.

4. The disruption of the communication media accelerates rumors that radiate from the area of disaster. Starting from conjectures on the weapons or causes, facts are magnified into rumors concerning the blame for such an occurence.

5. The social displacement creates tensions and anxieties that are emphasized under aerial attack.

6. Discriminate attacks on war industries, communication centers, and symbols of the ruling power are generally accepted as the "natural consequences of war" and often involve a personal dissociation from the regime.

PSYCHOLOGICAL WARFARE AND PROPAGANDA

The mechanism that manipulates the above reactions in time of war is generally described as "psychological warfare." Psychological warfare can be quite simply defined as a method of communicating ideas. In the broad sense it applies psychology to the conduct of international relations, and in the narrow sense it is the planned use of psychological strategy and tactics in support of military forces. The word "propaganda" is often confused with psychological warfare and is sometimes considered synonymous. Propaganda is actually only planned persuasion by the written or spoken word—leaflets; broadcasts, posters, pamphlets, and so forth. It is only one part of psychological warfare, which embraces also actions or things that can be utilized to communicate ideas. It is in this more encompassing context that the psychological impact of air power can make a substantial contribution to the achievement of our national objectives.

The program to gain our objectives must be a continuous operation, indivisible by either peace or war. It is waged before, during, and after a war. But it is not controlled by the laws, usages, and customs of war; and it cannot be defined in terms of stockpiles, order of battle, or named engagements. Success or failure is often known only months or years after the execution of the operation. Yet success, though incalculable, can be overwhelming; and failure, though often undetectable, can be mortal.

U. S. OBJECTIVES

Basically, the objectives of the United States that affect these psychological warfare activities can be stated as:

a) To maintain a government under God that ensures the basic freedoms, dignity, and responsibility of man;

b) To secure the peace and security of our citizens through the maintenance of our economic strength, political liberties, social philosophy, and our institutions, principles, and leaders;

c) To gain understanding and support for U. S. policies, ideology, and objectives by the people of the world.

CONVERSION

Conversion is one of the most effective techniques which nations can employ to achieve their political objectives. A people can be converted from one belief to another if given the choice between conversion and loss of personal status, stubborn individuals being exposed, scorned, and rooted out. A change in belief can also be accomplished by the peaceful development of social consciousness and responsibility. But to effect an initial conversion, participation in the public ceremonies and formal language of a new faith is generally required. Sustained counterintelligence must remain alert against backsliders, but formal acceptance will become genuine if the new faith conforms to the natural instincts, desires, and needs of a people.

If immediate wholesale conversion should require military or political operations that were too extensive or severe, the same result could be secured more gradually by toleration of the objectionable faith combined with the issuance of genuine privileges to the new, preferred faith. The conquered people are left in the private, humble enjoyment of their old beliefs and folkways; but all participation in public life, whether political, cultural, or economic, is conditioned on acceptance of the new faith. In this manner all the uprising members of the society will in a few generations move over to the new faith in the process of becoming rich, powerful, or learned; what is left of the old faith will be gutter superstition, possessing neither power nor respect.

It is this contest to convert people to Communism or democracy that is being decided today. To assure a favorable outcome we must understand and utilize the psychological impact of air power. The international Communist conspiracy is seeking to achieve a conversion by force which they cannot win by reason. And they are backing up this force with a propaganda program that costs them almost one and a half billion dollars a year. This application of force and persuasion requires an equal utilization of the forces of the free world—military, political, economic, social, ideological, and psychological.

To its adherents, Communism generally offers prestige and opportunity. Communist propaganda has been quick to exploit any differences or dissension between the United States and the rest of the free world and has consistently and viciously attacked United States policies, principles, and activities. Communism purportedly offers to the "have-not" people of the world Western science and technology, a professed political democracy, popular education, freedom from familial or religious control, and other coveted aspects of Western culture. All this is wrapped up in an initial nationalism that is particularly attractive in many areas of the world. At the same time, the discontented and dispossessed of the world are offered membership in what the Communists describe as an inevitable and status-raising world revolution against the decadent aspects of Western civilization.

LESSONS OF COMMUNIST PROPAGANDA

There are also a few lessons from Communist propaganda that deserve careful consideration in the formulation of our own psychological warfare operations. Communist propaganda is centrally planned and has long-range objectives. It is diversified in the channels through which it flows and is individually tailored to suit the audience to which it is addressed. It is unscrupulous in its methods and merciless in the exploitation of the weaknesses and shortcomings of its opponents. The themes of its propaganda may change—sometimes provocative, sometimes almost conciliatory—but the machinery, the operation does not. It has adopted and perverted the language of peace and aspiration. Communist propaganda is seasoned and professional, dependent on a powerful police state at home and on uneducated, underprivileged, or emotionally ill fanatics abroad, except for those few countries where Communism is so stable as to attract ambitious or practical men. And even in those countries, it relies on propaganda to prohibit dissent and control dissatisfaction.

RULES OF PSYCHOLOGICAL OPERATION

Since most psychological operations, either Communist or democratic, are directed to the subtle niceties of thought by which people maintain their personal orientation and balance in an unstable, impersonal world, there is no substitute for common sense combined with detailed technical knowledge and accurate scientific information in planning or carrying out psychological operations. The propagandist must use the language of the mother, the schoolteacher, the lover, the bully, the policeman, the actor, the ecclesiastic, the buddy, the newspaperman. And propaganda analysis, in weighing and evaluating these persuasive actions or methods, must be even more discriminating in determining whether the propaganda is hitting its mark. The selection of approach or appeal to be addressed to a hostile or neutral people generally follows certain rules:

1. Psychological operations are a function of command.
2. Psychological warfare must avoid promises that may not be kept.
3. Propaganda must contain a simple, concise, objective statement of facts that appeal to the instinct, emotion, or reason of its target audience.
4. Almost all good propaganda is true. It uses truth selectively.
5. Propaganda must influence or persuade to some action.
6. Morale and the vulnerabilities of an enemy to our psychological operations are often identifiable through an analysis of the media of communication.
7. Basically people are interested in one thing—themselves. The most credible propaganda must be confined to simple, factual, and plainly honest statements on things affecting that individual. Pompousness, intricacy, and bad taste generally defeat their own purpose.
8. Propaganda is like news—it has to be timeless or brand new. In between, it has no value.

While the above is a compendium of the rules affecting psychological operations, it does indicate a few of the basic truths which may govern effectiveness. We cannot spout platitudes in a vacuum, nor permit our political and military operations and objectives to be maligned, distorted, and used against us. We cannot permit the natural aspirations of all people for peace to destroy the military power of the United States that prevents aggression. In time of war, air power must be utilized in consonance with the psychological reactions toward it, and our psychological operations should provide purpose to an individual's activity: control over the chaos of war and reason for personal sacrifice.

AIR POWER IS PEACE POWER

While the psychological impact of aerial attack and the techniques of psychological warfare are primarily the concern of military strategists, air power in time of peace has much broader implications to an almost universal audience. The combat capability of aircraft is multiplied in time of peace, by destroying the artificial barriers between nations, as an instrument for the peaceful development and prosperity of all nations. Represented by the theme "Air power is peace power," it demonstrates the unique capability of air power to serve humanity with its aircraft, air bases, facilities, and personnel.

AIR TRANSPORT

In the short span of three decades, commercial aviation has grown into a billion dollar business carrying more people overseas than ocean liners and increasing its volume of air freight over two hundred times since 1945. Air express, air freight, and air mail are now considered necessities for a modern, technological society—speeding communication as well as essential, critical, or perishable goods to every corner of the globe. But while this new mode of transportation has assisted economic development, it has also provided the machines, men, and skills necessary to political and psychological action.

In 1948, in an effort to remove Western influence, the Soviet Union imposed the blockade of Berlin. The Berlin airlift was one of the most dramatic examples of utilizing air power to wage a political and moral battle. It affirmed the determination of the Western nations to support Berlin as an island of freedom. It proved to the world our determination to resist aggression, to make no compromise of principle with Communist force and tyranny. The C-54's of the Military Air Transport Service (MATS) became symbols of United States friendship and support to a grateful German people. The airlift demonstrated the swift capability of air power to support a great city logistically. It reaffirmed to our Western allies that the U. S. was willing to commit its military forces in peacetime to support the free people of the world.

Another example of air power's ability to satisfy a spiritual need and serve a political objective was the Mecca airlift of September 1952. Muslim pilgrims were stranded at Beirut, Lebanon, while making a pilgrimage to their holy city of Mecca. The "infidel" United States that had often been the whipping boy for the nationalistic angers of Muslim leaders became a hero. Upon the recommendation of Mr. Harold B. Minor, United States Minister in Lebanon, thirteen C-54's of the United States government provided a magic carpet for the pilgrims. A total of 3,763 Muslims became friends of the United States, as pilgrims from Turkey, Syria, Iraq, Iran, and North Africa gained a personal experience with which to counter Communist slander.

GOOD WILL

While we emphasize air power as a deterrent to aggression, and the chief weapons system for defense and attack, beneath this shield it has significantly contributed to the free flow of information in the world. And with this swift communication has been established a basis for mutual understanding and respect. Via the boundless airways, American tourists have immediate access to the remotest corners of the world; foreigners, often only vaguely understood, become people of diverse nationalities and races, known in person. One of the most significant employments of aircraft for this purpose was the good-will tour of Latin America, January–February 1954, conducted by the United States Air Force.

This "Wings for the America's" tour by fifteen jet fighters and five supporting aircraft visited eleven countries. In the initial press release announcing the tour, Air Force Secretary Harold E. Talbott stated:

> Latin American countries have an abiding interest in problems of hemispheric defense and they have informed us of their desire to view some of the aircraft which the United States has produced to meet the threat of aggression in the hemisphere and in other parts of the free world.

But far beyond his expectations for this demonstration of United States air power was the enthusiasm exhibited by the hundreds of thousands of people who were given their first opportunity to see jet aircraft and the huge air transports of the United States. A technological development had captured the imagination of the youth of Latin America. With almost unprecedented enthusiasm, Mexicans threw their hats and coats in front of the taxiing jets; Peruvians and Chileans waved their handkerchiefs by the tens of thousands; Argentineans carried the pilots on their shoulders, and President Perón embraced and personally escorted their Commander; Nicaragua renamed its new airport at Managua and issued a series of postage stamps honoring one of the fliers. United States airmen were everywhere mobbed by autograph seekers. Far more than an exhibit of jet acrobatics and aircraft, it was a dramatic and effective operation showing United States partnership with Latin America in defense and technology. It indicated new horizons for the economic development and unity of the Americas.

RESCUE AND DISASTER RELIEF

Aircraft have also played an increasingly important role in international disaster relief and rescue. Their ability to surmount physical barriers, particularly with the development of the helicopter, has been proven over and over again. The gratitude and affection with which these activities have been received are creating a new attitude; the psychological impact of air power has a new warmth and depth.

The North Sea floods that inundated areas of Great Britain and Holland in 1953 graphically demonstrated the application of air power to humanitarian purposes. In a world in which air piracy and international banditry are common Communist practices, the United States Air Force's participation in this disaster relief was a convincing affirmation of our principles. In 1954, the Far East Air Forces evacuated about a thousand indigenous people for medical relief, airlifted medical personnel and supplies to Pakistan, and provided an emergency facility to every country in the area. The Caribbean Air Command flew seventy-nine missions for rescue, search, evacuation, and other purposes of mercy. Our Air Rescue Service rescued and airlifted foreign nationals within minutes after an avalanche in the Austrian Alps and from floods in Panama, Costa Rica, Guatemala, Haiti, and Honduras. An Eskimo was evacuated to a hospital in Labrador; 1,440 underprivileged West Berlin children were airlifted for a summer vacation in West Germany. The psychological significance of these acts cannot be measured in terms of people and property saved, but in the ever increasing dependence on air power as a friend.

PUBLIC SERVICE

There is another aspect of air power which usually makes no headlines but which is securely integrating itself into our way of life. Aircraft are now used in agriculture to seed, to exterminate insects, to seed rain clouds, to provide meteorological services, and to ensure the marketability of produce. They are used by our national forest service for fire surveillance and fire fighting. Aircraft are often the quickest, easiest, and most accurate means for mapping and exploration. All of these activities are contributing to the restructuration of societies by eliminating isolation, by developing backward areas, reducing urban concentrations, increasing productivity, and creating a freer, richer life. The psychological impact of this development can be measured only by future scholars, but it has created a new perception of unlimited markets, uses, and opportunities. Air power has reduced the psychological distances between individuals, peoples, and cultures, and minimized the significance of national and geographical frontiers. While this is perhaps a mixed blessing, ignorance sometimes being construed as bliss, it seems better to face the frictions of living together than to retreat to the ignorance and suspicion that have bred so many wars in our past.

LONG-RANGE TECHNIQUES

While air power has emerged as the most powerful instrument of war, it is also being identified as the most effective tool to achieve our long-range objectives of peace and security. The only limits to its employment are the barriers of poverty and the artificial barriers of suspicion and fear. In the future we should look forward to a closer co-operation between nations—with realistic and not arbitrary regulations on the use of air space, with a new era of international co-operation in commerce. The psychological impact of aircraft has provided us with a new source of power to achieve these long-range objectives.

To utilize air power in this rather unconventional manner requires an increasing emphasis on sociological and psychological research. The industrial and technological facts of the world must become meaningful to all people. Nuclear weapons must be assimilated into our social environment and be understood and accepted. A new scale should be devised for evaluating public opinion, appeals, and responses. Social and anthropological research is needed to identify the goals of a society and to identify values and practices that can produce or destroy empathy between peoples. We need research to identify the dynamic forces within an individual and within a society which have formed and which are continuously modifying the determinants of human behavior. Data is needed on the ways and means that can be utilized to change the individual's perception of that environment. Psychological antipathies between nations and individuals must be catalogued. The art forms, symbolism, printing type faces, composition, color preferences and prejudices, and all the other myriad techniques and means that persuade people to action must be analyzed, documented, and then simply and concisely stated.

Some of these problems are now being met by research sponsored by governmental agencies and services in order to carry out their mission. Other research data have often been effectively utilized to support governmental programs. It is generally recognized that our knowledge and understanding of the world must keep pace with our international commitments. The recent London agreement, the Southeast Asia Collective Defense Treaty, and our alliance with Nationalist China further emphasize our interest in and knowledge of world affairs. It is to the task of making these agreements effective that so much of the resources of our nation are consigned, and it is upon the co-operation of science with government that our national and personal survival depends. As the President of the United States recently stated, our objective is ". . . to find the way by which the miraculous inventiveness of man shall not be dedicated to his death, but consecrated to his life."

Lewis S. Thompson, Washington, D. C., is Deputy for Mutual Security Assistance Affairs in the United States Air Force. Previously he served as president of Research Associates, Inc., was associate director of the Eisenhower-Nixon Research Service, and in the Central Intelligence Agency. During the war he was in the Office of Production Management as a dollar-a-year man and went to London in 1943 as executive officer for the Mission for Economic Affairs and representative of the United States on the Combined Production and Resources Board.

Obstacles to the Development of American Air Power

By W. Barton Leach

"Air power is the dominant factor in modern war"—this is the common currency of strategic discussion. But in this second decade of the atomic age, five years after the first Soviet nuclear explosion, the theoretical dominance of air power has not been realized in American force in being. It is well that we should examine the political, economic, professional, and administrative pressures that have repeatedly reduced and delayed the realization.

Actually the above quotation is incomplete. In its usual form there is an additional word: *but.* The *but* may appear in the same sentence, the following paragraph, three pages later, or next week's press conference. Yet appear it will. "Air power is the dominant factor in modern war . . . *but* we also need a navy second to none and an army adequate to fight all kinds of war, large and small; . . . *but* since there is no single year of crisis we must build in an orderly way for the long haul; . . . *but* the aircraft we buy must be the ones we need, not those that will be obsolete before we get them; . . . *but* in building our military power we must not undermine our economy and thus allow Communism to achieve its greatest triumph without firing a shot; . . . *but,* and so forth.

These *but* clauses are always unimpeachable verities. And each in its own way is a factor retarding the growth of national air power. Thus far the *but* clauses have had far too much success. Land power and sea power, at least since 1951, have had forces in being at the levels approved as the nation's strategic need. *This has never been true of air power since V-J Day.* Instead the country has been assured that "new emphasis is being placed on air power" and "our air power is greater than ever before in peacetime history." But the standard of evaluation must be the strategic requirement of the present, not the gross inadequacies of the past.

A Question of Definition

In this article United States air power is defined as the United States Air Force —not because of its name or any theoretical concept that air power must be unitary but because of the military tasks that have been assigned to the Air Force, that it is organized and prepared (given the means) to perform, and that will not be performed at any significant level of effort except by the USAF. To avoid oversimplification some discussion of this definition now follows.

Broader terms have recently come into fashion in defining air power. National air power, it is said, is not only the Air Force but also the air elements of the Army, Navy, Marines, and Coast Guard, our civilian airlines, and our incomparable aircraft industry.

Such a definition can be of some occasional use in pointing out the multiple uses of the air space in modern war. But it blurs the focus and can lead the unthinking to equate the organizations listed in the definition and conclude that a deficiency in the Air Force is cured by abundance elsewhere. It offers an anodyne for the agony of decision—the hard task of putting first things first, second things determinedly second, and third things out the window. It lets one say, "Of course, we all agree that air power is the dominant factor in modern war. But all these things are air power. So we can give something to everybody—they are all so sincere and persuasive—and let each build air power in his own way." This is surely the pathway to self-delusion, perhaps to disaster.

If we are to surmount the perils that face us we would be well advised to sharpen the focus of our definition as follows: United States air power is military air power in being to (1) deliver massive attack upon any enemy anywhere as ordered, (2) defend the United States against enemy air attack, (3) provide tactical air power, the air component of the ground-air fighting team, and (4) provide global airlift of men and matériel for all military purposes.

These four military tasks are primary missions of the United States Air Force. With regard to each of them certain plus values may be contributed by others, but it is well that these should be precisely understood to avoid false inferences that if the Air Force is not given the means to do these jobs someone else will do them.

Massive attack

The massive attack capability—the deterrent to big war and a major war-winning factor if big war comes—is the job of Strategic Air Command. This does not mean that SAC hugs a monopoly to its bosom. It does mean that no other military force has the capability of delivering massive attack at the required level of intensity and continuity. Further, no other military force has indicated any willingness to accept firm responsibility for any defined part of the job. This appears to include carrier-based aircraft, which must be considered a plus value available fortuitously if at all.[1]

Air defense

The air defense of the United States is the job of Air Defense Command in so far as fighter aircraft and early warning systems on land are concerned. The Army contributes antiaircraft fire, especially ground-to-air missiles such as Nike. The Navy contributes seaward extensions of the radar early warning lines. Possible contributions of fighter aircraft by the Navy and Marines must be considered indeterminate plus values, unlikely to materialize owing to the necessity of building an air defense system around firm commitments, assigned responsibilities, and integrated training. If ADC does not have the means to provide fighter defense of the United States, this country has no fighter defense.

---

[1] Thomas K. Finletter, *Power and Policy* (New York: Harcourt, Brace & Co., 1954), pp. 203–5, 224. Mr. Finletter, former Secretary of the Air Force, is an unimpeachable witness as to what decisions have and have not been made. He states (p. 203), "Now the point . . . is not that a wrong decision has been made as to the respective roles of the Air Force's land-based planes and the Navy's carrier-based aircraft, but that no decision at all has been made." It is a matter of common knowledge that the word has been passed in the Pentagon that there are to be no "interservice squabbles" and this is construed as forbidding a member of one service to express doubts as to the capabilities of weapons of another service. Mr. Finletter himself apparently felt that under this rule even the mild statement above quoted could not be made while he still held public office. In this country neither the Congress nor the public gets the benefit of the informed conflicts of opinion that are considered essential to sound decision in other aspects of national life; and Mr. Finletter's guarded statement suggests that a similar suppression of productive controversy governs the secret councils of the Pentagon. Almost certainly the suppression of Navy doubts as to atomic bombardment as a strategy and the B-36 as a weapon was responsible for the so-called "Revolt of the Admirals" in 1949, a matter in which the present writer believes that the Navy personnel were fully justified in placing their views before the public. See *The National Defense Program—Unification and Strategy,* Hearings before House Armed Services Committee, Eighty-first Congress, First Session (October 6–21, 1949). No such gag rule applies in England. See Field Marshal The Viscount Montgomery of Alamein, "A Look Through the Window at World War III," *Royal United Services Institution Journal,* Vol. 99 (November 1954), pp. 512–13; Marshal of the Royal Air Force Sir John C. Slessor, *Strategy for the West* (New York. William Morrow & Co., 1954), pp. 95–104.

Tactical air support

Tactical air support of ground troops —protection against enemy air attack, interruption of the flow of enemy supply and reinforcement, attack upon battlefield targets—is in a somewhat different category. Basically it is the job of Tactical Air Command and the overseas tactical air forces. But the three Marine Air Wings (equivalent in total to about nine TAC wings) do much the same kind of job, tending to specialize in attacks upon battlefield targets. Marine Air and TAC units are usable together, the presence of the former reducing plane-for-plane the requirement for the latter, as in Korea. In some circumstances—notably, as in Korea, where the battlefield is near a coastline and the enemy does not employ submarines and attack aircraft—carrier-based aircraft may fill a need for tactical air forces. But this plus value is limited in quantity and, more important, in continuity. Nothing approaching a plane-for-plane reduction in land-based air requirement is produced by the carriers; under the best circumstances the air complement of a carrier replaces less than half its number of land-based aircraft (Marine or USAF). Field Marshal Montgomery has made it clear that tactical use of carrier-based aircraft has no significant part in North Atlantic Treaty Organization plans.[2]

Air logistics

The air logistics mission is basically the job of Military Air Transport Service (a joint command operating USAF and USN aircraft, the former in much greater quantity than the latter) and the troop-carrier units of TAC. There are supplementary sources of airlift, notably the Fleet Logistic Air Wings, the civilian airlines, and private transport aircraft. However, it is well to note that in a general crisis—as contrasted with such local crises as the Berlin blockade and the Korean War—there will be multiple demands for airlift, and a transport unit that is itself overtaxed will not have resources to send to the aid of its equally overtaxed neighbor.

Summary of USAF responsibility

To summarize: As to massive attack capability and continental air defense against enemy attack, American air power is for practical purposes synonymous with the United States Air Force. As to tactical support of United States ground troops American air power is synonymous with the United States Air Force to about the same degree that American land power is synonymous with the United States Army—the Marines add air wings and divisions to each. On each of these three missions carrier-based aircraft may provide plus values when the fighting starts, but do not reduce by as much as a single wing the USAF requirement. As to military airlift the picture is more complex, but the USAF must carry the major burden.

---

[2] Lecture before the Royal United Services Institution, October 26, 1954, reported in *Royal United Services Institution Journal,* Vol. 99 (Nov. 1954), p. 507. It is inconceivable that this lecture could have been given without the concurrence of the Field Marshal's superior, General Alfred M. Gruenther, Supreme Allied Commander Europe

In a land action such as that of the Korean War why should not the attack aircraft of the carriers be land based, thus eliminating the heavy requirement for air defense and antisubmarine defense of the carriers? If such action were taken the Navy could provide a plane-for-plane reduction of USAF-Marine tactical air requirement. But this question seems not to have been asked, much less answered It is possible that both the Navy and the Air Force, for different reasons, would frown upon this suggestion.

Thus, obstacles to the growth of the United States Air Force are obstacles to the growth of American air power in a straight-line relationship. Put it this way: If obstacles to the development of the United States Air Force are removed, the nation will have the air power it needs. Otherwise not.

DEVELOPMENT OF USAF BEFORE AND AFTER 1951

Prior to 1951 the national need in air power had never been determined, much less programed, by the Department of Defense. The Finletter Commission and the Brewster-Hinshaw Committee, reporting respectively to the President and Congress, had stated a *peacetime* requirement of seventy wings as of 1948. But the Joint Chiefs of Staff had annually been restricted to the exercise of dividing among their services a progressively reduced total defense budget—15 billion dollars, then 14, 13, and 12. This, in the days of Secretary of Defense Louis Johnson, was known as "cutting fat without cutting muscle." It is useless to bemoan the inadequacy of the resulting forces and the invitation to trouble they presented; the Korean War is its own best witness. But it is worth while to point out the folly of starting with a dollar sign and restricting our military professionals to the job of dividing the pot. This could happen again,[8] and it could have the same result.

In 1950–51 this country was apprehensive, and rightly so. In September 1949 we detected the first nuclear explosion in the Soviet Union. And in June 1950 the Korean War showed us what happens when we drop our guard. So, for the first time since V-J Day, the Chiefs of Staff were directed to state what forces the country needed—all forces, land, sea, and air. The process was started in January 1950 and completed in a National Security Council decision on October 1, 1951. The agreed and approved requirement was 21 divisions for the Army, 409 major combat ships for the Navy, 3 divisions and 3 air wings for the Marines, and—here mark well—143 wings for the Air Force to be achieved by June 30, 1954, and to be manned by 1,200,000 military personnel. These forces represented relatively small percentage increases for the Army, Navy, and Marines, but more than a doubling of the Air Force. For the first time military and civilian planners, accorded full opportunity to state the military need, had given real substance to the precept that "Air power is the dominant factor in modern war."

As all know, 143 wings never materialized and 1954 disappeared as a target date. The hard facts of the fiscal year 1953 budget produced a stretch-out to 1955. Then in the "Truman" budget for FY 1954 another stretch-out to 1956 was programed. The "Eisenhower" budget for FY 1954—the only one that really counted for that year—cut 5 billion dollars out of the Air Force, adopted an "interim" 120-wing program, and left the whole thing to a re-examination by the new Chiefs of Staff, all of whom were to be changed in the summer of 1953. The new Chiefs, operating with a problematical freedom of action, found that security airwise could be attained with 137 wings to be achieved by 1957 and to be manned by

---

[8] ". . . a balanced or reduced budget—long a goal of the present Administration—is a very major factor in the 'New Look.' Secretary of the Treasury George Humphrey probably had more to do with service force levels than did the Joint Chiefs of Staff" Hanson W. Baldwin, *The New York Times*, February 6, 1955.

975,000 military personnel.[4] The manpower figures are striking: someone discovered that with "better utilization of manpower" the Air Force could get:

in 1955	120 wings	with 970,000 men
in 1956	127 wings	with 975,000 men
in 1957	137 wings	with 975,000 men (*sic*).

That is where matters stand today. What happens now will depend upon how insuperable the obstacles, herein described, prove to be.

THE OBSTACLES

Obstacle One: The Air Force is in process of growth, having never achieved its planned strength. When a policy maker wants to reduce total Defense money and manpower—and this is a constant state of mind—it is far easier to cut back planned future force than to disband existing military units, scrap existing weapons, and discharge personnel already on the job. The fact that the planned future force is indispensable and the existing present force dispensable is not always a sufficient reason for building the former at the expense of the latter. The reluctance of Secretaries of Defense to accept split papers from the Joint Chiefs of Staff and to insist on JCS "agreement" loads the dice in favor of the status quo; if unanimity for change is unobtainable the situation tends to remain unchanged—existing forces stay; new forces are reduced, delayed, or both.

Obstacle Two: Air Power is expensive. Aircraft cost a lot and become obsolete fast. Take for example the B-36, the ten-engine intercontinental bomber. It cost 3 to 5 million dollars a copy, and it will probably pass into the junk pile before it ever sees action. Many find it difficult really to accept the principle that the B-36 has performed its mission—and can only perform its mission—if it never has to drop a bomb. Sir Winston Churchill can say, "It is certain that Europe would have been communized and London under bombardment some time ago but for the deterrent of the atomic bomb in the hands of the United States." But this concept of an international revolver-in-the-cop's-holster is elusive. A battleship or a carrier is different. You can see it, even visit it on the Fourth of July. A division is different too; it marches—with guns. But a B-36 flies above visual observation, nobody is permitted to board it, and its crew is unimpressive in a parade.

Obstacle Three: Air power is the victim of a cultural lag. The end of the last paragraph could be the beginning of this, for they are related. Anyone will find ways to afford expensive things if he understands them well enough to be convinced of the need. Men now of mature age were boys when military force meant soldiers and sailors, ships and guns; these early impressions leave their mark—"the anachronistic power of saber and broadside."[5] Few have ever operated an aircraft; fewer still have flown in combat. Fortunately at the time but with unfortunate consequences now, Americans have never had the experience of living or fighting under skies controlled by an enemy. In the Great Debate of 1951, the subject was "*troops* to Europe." Discussions of rearming Germany deal with "twelve *divisions*." If air power is mentioned at all in these contexts it is in the second or third paragraph, and perhaps between parentheses. This is not ignorance; when reminded, all acknowledge that we must have air power—too. Rather it is a lack of instinctive understanding, that quality of the recesses of the mind that goes deeper than knowledge. Why does this lack of understanding persist? That leads to . . .

---

[4] Quantity of air power is usually stated in numbers of wings, but this can be delusive unless other factors are taken into account. Principal among these are personnel, appropriations, and base structure. A reduction from 143 wings to 137 is a matter of 4 per cent; but if, concurrently, planned military personnel are reduced from 1,200,000 to 975,000 (19 per cent), the annual rate of appropriations is reduced from about 16 billion dollars to about 12 billion (25 per cent), and if a plan for dispersal over a larger number of bases is discarded, the reduction in national air power is much greater than 4 per cent. Managerial improvements may occasionally reduce manpower and money without reduction in strength; but experience suggests that such harmless reductions are likely to be in very small percentage figures.

[5] W. W. Haines, *Command Decision* (Boston: Little, Brown & Co., 1947), p. 109.

Obstacle Four: The military commentators were brought up in the older services. Compile a list of writers and broadcasters on military affairs arranged in the order of their influence on national thinking. Then see how far down the list comes the first who can wear silver wings on his chest. Wings on the chest are not requisite to a realistic belief in air power; both in this country and in England some of the firmest supporters of the Air Force have never flown a plane, and this includes some writers of national reputation. But too often the military writer, long familiar with the problems and command personnel of the older services, speaks in understanding, vivid terms of big ships and infantry tactics, reserving the *but* clauses and the confidence-sapping doubts for air operations.

Some readers of this article may be surprised that the present writer voices dissatisfaction with the development of United States air power. Readers of the daily press could easily get the impression that current policies lavishly nourish the Air Force while starving the other services. Some military critics feel a poignant sympathy for the "squeeze" upon the Army, Navy, and Marines produced by lowered budgets and manpower levels. But as to the Air Force they tend to focus on the single fact that Air Force manpower and money are programed at slightly increasing figures, ignoring the "squeeze" implicit in a directive to increase wing strength from 120 to 137 (14 per cent) with a manpower increase from 970,000 to 975,000 (one half of 1 per cent). All forces are squeezed by current policies—the surface forces by being directed to operate existing (or slightly lower) forces with men and money lower than existing levels, the Air Force by being directed to operate much larger forces with men and money increased only slightly. If a military writer recognizes the squeeze in the former case and not in the latter, his readers (who may well include key members of Congress) are to that extent given an unbalanced analysis.

Obstacle Five: The Air Force lacks representation in the Office of the Secretary of Defense. The key civilians in OSD are the Secretary, Deputy Secretary, and nine Assistant Secretaries. None of the men now holding these positions has any Air Force background—and this has been true, with a single exception, since the first Secretary of Defense took office in 1947. The Army is only a little better off. Men with an orientation toward the Navy have consistently held most of the important posts, a legacy from the days when Secretary of Defense Forrestal simply imported his staff from the Navy Department. The all-important office of the Comptroller of the Department of Defense is essentially a Navy office containing no responsible personnel with Air Force background. These civilian officials are not prejudiced against the Air Force, nor are they unwilling to learn. But an instinctive understanding of Air Force problems is not in their blood; they do not naturally seek the association of Air Force people; and when the chips are down it too often happens that the Air Force gets the short end of those very important decisions that are controlled by the staff of the Secretary of Defense. Attention has been repeatedly called to this imbalance of personnel, but appointments continue to be made which perpetuate it.

The single exception above referred to was Robert A. Lovett, Deputy Secretary, then Secretary of Defense from late 1950 to January 1953. Mr. Lovett, a naval aviator in World War I, served as Assistant Secretary of War for Air in World War II. It was during his regime in the Department of Defense that the 143-wing Air Force was authorized and the precept of equal division of money between the services temporarily discarded. But Mr. Lovett had not been out of office three months before the Office of the Secretary of Defense had shelved the 143-wing Air Force and cut 5 billion dollars from the Air Force share in the FY 1954 budget —all without consulting the Joint Chiefs of Staff, the statutory "principal military advisers" of the President, the National Security Council, and the Secretary of Defense. It is unlikely that this could have happened if men with Air Force background had been included in OSD personnel, particularly in the Comptroller's office.

For the most part OSD has been staffed with able men. But ability is not enough. A Supreme Court comprising the nine ablest lawyers in the country would not be acceptable if it turned out that all nine came from the Wall Street firms. Nor can any President choose a Cabinet without reference to geographical distribution and diversification of career background. Those who are led, governed, or judged must have confidence that all aspects of a matter under decision are understood and objectively evaluated.

Obstacle Six: The Congressional relations of the Air Force are inferior to those of the other services. In Great Britain the military services have no such relationships with Parliament as are commonplace between United States services and the Congress, and as an abstract proposition much can be said for the British practice. However, any such reduction of military-legislative contacts must take place across the board. If the Corps of Engineers, the Marines, the Reserve Officers Association, and the Navy have the number of watchful supporters in Congress they now enjoy, another service lacking such supporters will surely not be treated as "the dominant factor in modern war." The record of the Air Force in this matter is spotty. There have been periods when staunch support came from both parties in both Houses of Congress—for example, when in 1951 a greatly expanded Air Force was jointly sponsored by Senator Henry Cabot Lodge, Jr. and Representative Carl Vinson. There have been other periods, notably in the budget proceedings of early 1953, when Air Force support came from a few Democrats alone. More than a score of Air Force veterans were then in Congress; yet during this 1953 episode when General Vandenberg was subjected to a bullyragging never before inflicted upon a senior general officer and when 5 billion dollars were being cut out of the Air Force budget, no Republican veteran of the Air Force came to its support and some delivered denunciatory speeches on the floor. At the present time any observer of the Hill can identify Democrats who, with a firm understanding of air power, have backed the Air Force against all comers including a Democratic President and Secretary of Defense. But among the Republicans it is difficult to find those who can be counted Air Force supporters in the same sense that a dozen in the House of Representatives and a half dozen in the Senate can be counted Navy-Marine supporters.

Obstacle Seven: The Air Force is really the silent service. Its senior commanders do not write books and articles. As to the war in Europe there are books by Eisenhower, Bradley, Montgomery, Patton, and a host of junior commanders, but none by Spaatz, Doolittle, Vandenberg, Eaker, Twining, Norstad, Weyland, Anderson, or Quesada—and as a result, ten years after, several of these names are not even remembered by the public. No Air Force officer has recounted the strategic bombing effort that brought Japan to its knees—the first time in history when air power was a principal factor in causing a nation to surrender before its homeland was invaded and while its armed forces were intact. The same pattern appeared in the Korean War—some ten books about the Army, five about the Navy, four about the Marines, and one about a single squadron of the Royal Australian Air Force. But not one book about the United States Air Force. Those responsible for the development of national air power have not made use of the basic instrumentalities of information and enlightenment to get the public behind them.[6]

Obstacle Eight: The Air Force has been the most serious victim of stop-and-start planning. Air Force wings have been successively programed at 66, 55, 48, 42, 95, 143, 120, and 137—all in a period of about six years. No business in the world could operate under these conditions, nor can any government department. Dislocations are frequent, and when they appear, those who have been responsible for the forced reprograming often take the lead in criticizing the Air Force for the difficulties caused by the reprograming itself. Base construction has first been held up and then ordered forward on a crash basis. Everyone knows that money and time cannot be saved concurrently. Yet when the waste appears, the flood of criticism breaks forth. Sooner or later someone says, "If the Air Force can't use money any better than this, then we should cut their appropriations"—as if the money were going to the generals for their personal use.

Obstacle Nine: The Air Force appears reluctant to state its full case. The overriding national priority of the air-atomic power of Strategic Air Command has survived for a long time as these things go. But it has been under steady attack, and the integrity of SAC has not always been assured. Under these conditions the Air Force is understandably hesitant to make claims for additional force that might have to be satisfied out of SAC planes, money, and men. Let us suppose for the moment that, as serious commentators have suggested, the difference between adequate and less-than-adequate strength in the Continental Air Defense Command represents an additional 3 billion dollars a year for five years. The Air Force in deciding whether to request such a sum must ask itself where the money will come from. Certainly not from an addition to the total Defense budget; Secretary of the Treasury Humphrey is much too influential to permit any such dislocation of plans for a balanced budget and a 1956 reduction in taxes.

---

[6] That credit may be given where due, it is noted that the following Air Force generals published World War II memoirs: H. H. Arnold, George C. Kenney, Lewis H. Brereton, and Claire L Chennault. However, no Air Force general has produced a volume on the principles of air power or on global strategy. Compare Marshal of the Royal Air Force The Lord Tedder, *Air Power in War* (London: Hodder & Stoughton, 1947); Marshal of the Royal Air Force Sir John C. Slessor, *Strategy for the West* (New York: William Morrow & Co., 1954). The excellent articles in *Newsweek* written by General Carl A. Spaatz since his retirement have the advantage of being current and the disadvantage of being fragmentary.

Certainly not from the Navy, which is much too firmly entrenched in positions of power in the Department of Defense. How about the Army? The Army has already been programed for a cut of some 300,000 men; and serious resistance in Congress and in the press has appeared. A further Army cut would not seem likely. So it appears that the funds would have to come from the Air Force. A cut in Tactical Air Command would be resisted by the Army, which could logically point out that a smaller army will need greater supporting air power to make up for its own reduced firepower. So, by a process of elimination, one suspects that the cut would come out of Strategic Air Command. Still fresh is the memory of that episode in 1948–49 when the Air Force, having performed the incredible feat of airlifting all supplies for Berlin through an entire winter, was congratulated—and told to pay most of the bill out of its own pocket. Some of that money came from SAC, and the same thing could happen again if big additional investment was required in Continental Air Defense Command. Strategic Air Command is no "mania of the bomber generals"; but SAC's ability to fight—and deter—is their responsibility, and they cannot look with indifference on a threat to its integrity.

OBSTACLES AND LEADERSHIP

Obstacles are things to be overcome, or to be proffered as excuses.

The obstacles here listed pose problems of leadership—some at the national level to be met by the President and Congress, some at Departmental level to be met by the Secretary of Defense, and some at Air Force level to be met by its civilian and military leaders. All of them put heavy demands upon determination and courage. Persuasive reasons for inaction or delay sprout in every file cabinet and blossom in every staff conference.

But air power is an instrumentality to be entrusted to men of war-leader stature with a wartime sense of responsibility and urgency. Under these conditions each of these obstacles, and all of them together, can be overcome.

W. Barton Leach, LL.B., Cambridge, Massachusetts, is a professor at the Harvard Law School and the Harvard Graduate School of Public Administration. Having served in the Army Air Forces as Chief of the Operations Analysis Division, he now holds a commission as Brigadier General, United States Air Force Reserve. He was a member of the War Department task force that presented the case for unification of the services in 1945–47 and was director-co-ordinator of the Air Force presentations in the "B-36 Hearings" of 1949. In collaboration with Harvard colleagues he now conducts a graduate seminar in Defense Policy and Administration in the United States. He has published numerous books and articles on his legal specialties in Property Law.

Air Power and Foreign Policy, Especially in the Far East

By Thomas K. Finletter

OVERNIGHT, on August 6, 1945, atomic weapons joined air power in a team of destructiveness which was to revolutionize the world position of the United States. Until this dreadful partnership came into being the United States could not be directly attacked by an enemy. After it came into being a direct attack of the most serious kind on the United States homeland became possible.

A foreign policy based on the military premise that no enemy can attack the United States homeland—and such was the pre-1945 premise—is one thing. A situation in which we must face the fact that Russia and China are now able, or soon will be, to deliver a most violent blow to the United States, and even to defeat us in war if we are not properly prepared militarily and politically, calls for quite another set of foreign policies. We are in the process of creating these policies. United States military power, and particularly its air power, will play a leading part in the final product.

Air power thus has heavy responsibilities; but it also has its limits. Air power brought this new set of problems to the United States; it is for air power to do what it can to solve them. And it can do much. But air power must not pretend to be able to do more than in fact it can, and it must not allow others to say it can do that which in truth it cannot.

In one part of the world, the Atlantic area, these responsibilities and limits are well defined. There the problem is simple and dangerous. It is to sustain and strengthen the political cohesion of the Atlantic community which the Communists are trying so hard to break. It is to defend this community militarily by presenting to the Russians a solid politico-military front which they cannot break through. By far the most important element in the military part of this front is the complex of forces whose purpose is to nullify the Russian air-atomic power, that is, to make the Russians realize that it would be a grave mistake for them to start a general war or allow one to start. Air power is the core of this military complex.

The responsibility of air power in this role is enormous. We can build an air power capable of meeting it. We can have an air power which will make any intelligent government, and the Russian government is intelligent, reach the conclusion that at all cost general war with the United States and its North Atlantic Treaty Organization allies must be avoided.

We are lagging in building this air power. Very largely because we have been living in a time of United States monopoly or overwhelming superiority in atomic weapons and the aircraft to deliver them, and have not yet made our plans on the premise of the tremendous and highly dangerous air-atomic power the Russians will have in a year or so, we are continuing to load our military establishment with weakening compromises. As a result our air power is at too low a standard. But I shall not discuss the planning failure in this article, which is concerned with the political problems in which air power is involved rather than with the details of the power itself.

NATO—POLITICAL SOLIDARITY AND AIR POWER

Air power is one of the two indispensable actors on the NATO stage. If the NATO community fails to hold together politically, it will be Balkanized, and the United States will be backed into an enclave in a disordered and largely Communist world, and strains which may prove unbearable will be put on our American system of freedom as we busy ourselves getting ready to shoot it out with our backs to the wall.

The other actor on the NATO stage also is indispensable. It will do little good to have political solidarity in the NATO community if we fail to build an air power so overwhelmingly defended and capable of such an overwhelming counterattack that the Russians will not dare attack it or those whom it defends. Imagine what the Russians and the Chinese might do if their military experts were in a position to say to them that the Russians could knock out enough of our air power to make it possible for the Russian state to bear the resultant counterattack. The political position of the United States and the solidarity of the NATO community could not survive such a collapse in United States military power in the decisive weapon.

WESTERN POWERS AND ASIA

When we leave the NATO area we find a radically different set of conditions and therefore the need for radically different policies. The problems of the West in Europe are dangerous (because Russia has atomic weapons) but, in the broad line of the policies immediately required, simple. In the non-NATO area, the issues, as long as they involve only China, are not directly dangerous (China has no atom bombs of her own) but are of the utmost complexity and difficulty.

Thus in the area of NATO, as we have said, the political solidarity of the countries defending themselves and their homelands against Russia is vital. But, in the long line of contact between the free world and Communism outside the NATO territory there is little solidarity between the Western states and the indigenous peoples to lose. There may be friendship or respect or both, in some cases, but there is no common agreement among the peoples of the East and the Western powers to stand together against Communism, as the NATO countries have done in the Atlantic area. Indeed there are certain fundamentals which make very difficult, indeed almost abnormal, such a common front between the peoples of Asia and those of the West. It is the reverse of the condition in NATO, where a common society and a common tradition of long standing make it normal for European countries and the United States to stand together in the face of a threat from outside their own society. We of the West, who often do not understand this, are baffled when the Eastern peoples do not welcome us as brothers in a common fight against the Communist menace.

It is not just because East and West are of different societies and different races that it is hard for them to work together. It is also because until recently, and to some extent still, the West has been using its superiority in firearms to extend Western influence in Asia. The resulting bitterness makes it almost impossible to achieve a solid front of Asian peoples and Western powers, even when the purpose of such a front would be not at all to extend or perpetuate Western influence in Asia but to help the Asian peoples defend themselves from the new colonialism coming down upon them from China and Russia.

Note that it was this superiority in

weapons which made Western colonialism possible. Colonialism is one form of the imposition of the will of one political unit on the people of another. It is a form of conquest and is therefore based on military superiority. A colonial conquest is usually achieved without large-scale wars because colonialism assumes a high order of weapons superiority in the colonizing power. It is necessary to understand this fact if one is to study recent United States foreign policy in the Far East and to consider the role of military power in our future policy for the Far East.

OUTMODED POLICIES

The recent confusion and bafflement in United States policy in the Far East come in large part from a nostalgic devotion by some Americans to policies which were good enough in the time of overwhelming Western weapons superiority but are quite inappropriate for the present relative armaments of East and West. During most of the nineteenth century and well on into the twentieth, the types of weapons of the Western powers were so much more advanced than those of the Eastern peoples that the West was irresistible. Small demonstrations of naval power or the march of a small Western ground contingent to the capital of China could make the weak Manchu Empire and other peoples of the East yield to the demands of the militarily superior Western powers. Japan alone, for a while, wholly excluded foreigners, and armed rapidly on Western lines when she finally reverted to her earlier policy of allowing foreigners within her borders. But China, potentially the most powerful of the Eastern countries, was not only backward militarily but also was in one of those rare weak periods in her history, a weakness due in great part to her military inferiority.

This made for a pattern of Western policies toward the East which has survived into the present when the conditions which made these policies possible have radically changed.

During the days of Western weapons superiority and of the resulting colonialism, the attitude of the United States was different from that of the other Western powers. For various reasons, one of which was that we had a huge continent of our own to develop, and also, I think it may be said, because we decided against colonialism on its merits, we did not join in the scramble for colonies and did not use the weapons superiority we shared with the other Western powers to extend our influence in the East or anywhere else much beyond our own continental limits. We even got rid of as much of the territory we took in the Spanish-American War as we could, as fast as we could. Our anticolonial record was good. We got into trouble only quite recently, in Indochina and Formosa, and then not because we were trying to get something for ourselves but because we wanted to stop Communism from expanding. But we got into trouble just the same, because we acted on the false premise that the West still had the weapons superiority it used to have in the prosperous days of colonialism, and that therefore with practically no effort on our part and at very little cost we could use our Western military power to make the Easterners do what we wanted them to do.

Conditional battle cry

This fallacy, that we still have a weapons superiority which in fact we have not, corrupts our Asian policy. Tradition dies hard in such matters. In the past, United States as well as other Western thinking has always assumed, correctly, that it was much safer to be tough in the East than in Europe where, if we got into war, it would be against people as well armed as ourselves, or better. This is why many Americans who are isolationist-minded toward Europe are the most bellicose about China: it is safer, they believe, to risk war with China which has no atom bombs than with Russia which has them. It is why men talk of easy victory if we have to fight the Chinese. For you will note that those who want the toughest policy against the Chinese Reds always promise an easy victory at little cost to the United States. It would be an act of folly, which never could be thought of, they have often assured us, to send American ground troops to the continent of China. There is no substitute for victory, we are told; but there is a string to this stirring slogan. It is a conditional battle cry, and the condition is that victory is to be had with the utmost ease, with air and sea power alone. Elmer Davis says that only ground troops have mothers, which is a way of saying that American opinion knows that when the ground troops fight it is a tragic and bloody business on a mass scale; and the people of the United States will not take kindly to anyone who gets us into that kind of sacrifice of our young men unless the cause is extremely important. So if you are not only promising to be tough with the Chinese Reds in speeches but planning to beat them militarily if they challenge us, then you have to provide that they can be beaten quickly and inexpensively by a few flips of the wings of American air power. You have to promise, in short, that we still have an overwhelming weapons superiority over the Chinese Reds such as we used to have in the old days.

Atomic weapons

This of course brings us to the question of the use of A- and H-bombs by the United States as a part of its Far Eastern policy. Plainly, without using atomic weapons, it would be a difficult operation for us to bring the Communist Chinese regime to the point of surrender. If we could be sure that Russia would not intervene, we could win local victories, usually with TNT (trinitrotoluene) and incendiaries only (we could have won at Dienbienphu had we thrown in enough United States air power). We could do considerable damage to Chinese airfields and other military installations, and could destroy Chinese cities without using A- or H-bombs, provided, as I said, that the Russians did not come to the help of their Chinese allies.

But even if we could count on Russia's not helping China, an air and sea operation against China would be expensive; the attacking bombers would take considerable losses; the United States and other United Nations troops in Korea would be open to attack by the formidable Chinese Communist air force (which is one of the most modern large air forces in existence) and by the powerful Chinese ground armies; and Okinawa and United States naval forces in the area would also be open to attack from the Chinese Red air force. It is likely, if this kind of fighting once got started, that at some point along the line we should be driven to use atomic weapons. Then the damage to China would be beyond estimating.

Conditional weapons superiority

So one must conclude that as a strictly military matter we do still have a conditional weapons superiority over China, the conditions being that Russia will not interfere with us and that we are willing to increase substantially the likelihood of general atomic war.

And there is another condition, perhaps the most limiting of all. United States public opinion and the United

States government apparently believe that there ought to be some other way of carrying out our foreign policy in the East than by a mass killing of this kind. You will note that when it comes to making the hard decisions, the United States so far has shown a restraint which seems almost out of character when looked at against the background of the speeches and declarations of policy of our governmental officials.

So air power as it tries to find the role it is supposed to play in the Far Eastern policy of the United States has to give heed to what its government does even more than to what it says.

U. S. POLICY IN ACTION

The Korean War was a special case, and air power can learn little therefrom about its future role in United States foreign policy in the East. Korea was a collective operation under the United Nations in which, despite our preponderating role, we were acting under the juridical principles of the UN Charter. The purpose was to stop the aggression where it started, at the 38th parallel. There was therefore a substitute for victory in the Korean operation, if by victory we mean the unconditional surrender of Red China. The substitute was to give vitality to the commitments we had made in the UN Charter. And, since the principles of the Charter limited the UN's political objective, air power was limited accordingly. It was not air power's function to destroy the Red Chinese state or to bring the Chinese to unconditional surrender; nor was air power supposed to extend, petulantly, the war to the Chinese mainland unless this was necessary to accomplish what we were fighting for, namely to throw the North Koreans and Chinese back of the line where the aggression had started. Indeed a limited bombing of the Chinese mainland, say of the Chinese airfields over the Yalu, as was so strongly urged by some, would have hurt us more than it would have hurt the Communists, for it would have provoked Chinese air attacks on our UN sanctuary, namely all of South Korea, no part of which was attacked by Chinese air power at any time during the war. If this United Nations sanctuary had been hit by the Chinese the war then would have changed its character. We of course would have hit back hard and the war would have become general, certainly with China, perhaps with Russia as well. Air power was properly under wraps in Korea.

Korea, however, was unique. In no other part of the Far East has the fighting with the Chinese Communists been under the aegis of the United Nations. The resentment of the American people at the heavy casualties in Korea, intensified by the injection of the war into domestic politics, killed the possibility of limited wars of the collective security type under the United Nations, at least for the moment.

Massive-retaliation policy

A series of announcements by the United States government followed the truce in Korea in July 1953. If the Chinese Reds started the fighting again in Korea we would not continue to limit our air action to the Korean peninsula, the Reds were told by the unanimous declaration of the sixteen nations fighting in Korea; we would hit at the Chinese mainland itself. If the Reds moved into Indochina (this time the French and the United States alone making the threat) we would not hit back in the territory of Vietnam alone but would strike at the Chinese mainland with our air power. Finally (the United States speaking alone this time, with no ally joining in the declarations), we told Mao Tse-tung, the Russians, and the whole world that we would hit any further Communist aggression in Vietnam (the immediate danger spot) or anywhere else, whether the aggression was by overt military invasion or by covert aid, with all the force necessary. The United States would strike at such an aggression in a massive retaliation at times and at places of its choosing. The counterblow would be anywhere from the area of the local fighting to the communications, industrial, governmental, and population centers, and the weapons used could be anything from light convential ones up to and including the most destructive of the fission and fusion bombs.

Had this been the policy that United States air power was supposed to get ready to carry out, some important changes in Air Force and Navy planning would have been needed. An air operation against China might have been short and decisive, with the Chinese capitulating before the awful destruction which an all-out atomic attack would have wreaked; it might on the other hand have been a long-drawn-out affair with nonatomic weapons and with considerable attrition to United States planes; it might have spread to war with Russia as well as with China, and the United States might have been alone in that war, since the massive-retaliation policy had not been accepted by any of our allies. We thus would have had to increase our air power substantially to be ready for all these possibilities. We would have had to build a special air fleet for the East (since our present force levels are designed almost wholly to counter the Russian threat in the West), and we would have had to remodel and substantially increase our strategic air force in view of the possibility that we might find ourselves fighting the Russians without the aid of our NATO allies and without the availability of our strategic air bases located in NATO territory.

Dienbienphu

Apparently the massive-retaliation policy came near being put into action at Dienbienphu. We shall not know the full facts until history is written, but we do know that the Chinese Reds put our policy to the test when they sent into the Vietminh enough artillery and other equipment, plus technicians, to capture the French garrison at Dienbienphu. Apparently deliberately, they put themselves within the letter of the American threat; they knocked the chip off the shoulder of the United States. Naturally the temptation to hit back, massively, was strong, and there was much highly placed opinion in the United States government that we should do just that. We still had the old weapons superiority of the colonial days in the form of the atom bomb; why not use it, especially as we had said we would? But calmer counsels prevailed. There was talk of "united" action, that is, of consulting our Western allies. There also was some talk of blaming these allies for refusing to go along with our tough anti-Communist policy; we were ready to act, but our allies (whom we had not consulted about the steps which had led up to the difficulty) were delinquent, it was suggested. History will probably show that it was touch and go. We were close to something—whether to a quick surgical victory for the Vietnam, the French, and the United States, to World War III, or to something in between, one can only speculate. All we do know is that there was no retaliation by us, massive or otherwise, as the French garrison was conquered; that the Red Chinese exulted at Geneva in their sensational victory over French colonialism and its supporter, the most powerful nation of the West; and that United States air power was left considerably confused as to what it was to get ready for in its planning for the Far East.

Formosa

No sooner had the Vietnam situation begun to settle down than Formosa stirred up all the same problems again.

The Red Chinese seem to be in a highly charged state of mind about Formosa, the Pescadores, and the inshore island groups of Quemoy and Matsu. The Chinese Communist government has announced that it intends to take Formosa and its appendages within the year 1955. They already have attacked Nationalist-held islands near the Chinese mainland. The effect of all this has been to reinstate the United States policy of massive retaliation, which had been practically dead after its collapse at Dienbienphu. Our policy relating to Formosa is not called massive retaliation, but it comes to the same thing. Again it is the United States alone, without the support of its Western allies, using the threat of massive air and sea action against the Chinese mainland, with the commitment to the American people not to use ground troops if we do become involved in war. Again there is the question whether in fact we have weapons superiority over the Chinese, whether, that is, we can be sure that if we use our atomic weapons the Russians will stand aside and not come to the support of their Chinese allies with their own A-bombs.

At this writing the same dangerous possibilities we had in the Vietnam are in the Formosan situation. There is, however, this difference: the warning by the United States to the Red Chinese that it *will* fight if they attack Formosa and the Pescadores and *may* fight if they attack any of the other Nationalist-held islands has been made in a peculiarly formal manner. It is not the executive branch alone which has told the Chinese of our intention to hold the islands (as was the case when the Chinese took over northern Vietnam) but the executive branch plus both Houses of Congress, the latter acting after a full debate. Moreover, the physical circumstances around Formosa are such that it will be difficult for the Chinese to take Formosa and the Pescadores (this is not true of the Matsu and Quemoy groups) without clashing with United States military forces. The Chinese cannot invade the main islands unless they have air superiority over the Formosa Strait. They therefore are not likely to attack the islands except after having tried to take air superiority over the Strait from the United States by attacking the United States Seventh Fleet and any United States carrier- or land-based planes flying in the area. In Vietnam the Chinese were able to defeat the French without taking part in the war themselves and therefore without fighting United States military units. It does not seem possible that they can repeat this in the Formosa-Pescadores area. They therefore should not attack the islands unless they have decided to make war against the United States.

A tense situation

Perhaps the Chinese Reds have decided on war with us, or perhaps they mistakenly think they can repeat their triumph of Dienbienphu in knocking the chip off the U. S.'s shoulder. Their official pronouncements sound that way; and if that is what they have decided on there is no way of avoiding the war which some of our enthusiasts want. But even if the Chinese have not decided to provoke a general war with the United States, the situation in and around Formosa is so sensitive that there is much danger that the contending forces will blunder into a war unwanted by either side. The Chinese held Formosa for many centuries, and the Chinese Communists are whipping up a jingoistic sentiment to get it back; the United States has drawn a line a few miles off the Chinese mainland and has told the Chinese not to step over it; and the powerful Chinese Communist Air. Force, the United States Seventh Fleet, and the United States Air Force's land-based planes are about in the area. American air power obviously has to assume that something may happen and get ready for it.

What is this something which may happen? As in the Indochina crisis it runs all the way from local action in the vicinity of the contested area, through a "limited war" with conventional weapons only which may last a short time or a long one, to atomic fighting which may or may not involve the trading of atomic blows by Russia and the United States.

As long as the Formosan problem is not settled, American air power has, in military parlance, a heavy "requirement" to be ready for what may come out of it. And, although this article deals with air power alone, I add that as long as the United States and Chiang Kai-shek on the one side and the Chinese Reds backed by Russia on the other stand glaring at each other across the Formosa Strait. the chances of general war are so substantial as to increase the "requirements" of all the United States services, including the Army as well as the air services. No one can tell what kind of a war it is we have to be ready for. For all our hopes to the contrary, once the fighting starts, it may involve United States ground troops on the Chinese mainland.

OTHER PARTS OF THE EAST

The responsibilities of air power in the rest of the East seem to come down to the need to be ready for general war, of some kind or other. An attack by China or Russia on Japan presumably will precipitate general war by the two Communist partners against most of the free world. The Communist advance, if there is to be one, in Indonesia, South Vietnam, Laos, Cambodia, Thailand, and Burma is more likely to be by subversion than by military invasion by Chinese Red armies. In Malaya the British have sole responsibility, as the French did in Indochina. If it is to be United States policy to use our military force to stop Chinese expansion in Asia, whether the expansion be in the form of subversion or of orthodox military invasion (and it may be that this is our policy), United States air power will again be in the position it was in in Indochina. It may be called on to fight anything from a local engagement up to a general atomic war.

RESPONSIBILITIES OF AIR POWER

Air power thus is wholly unclear as to what it may be called upon to do in aid of United States foreign policy in the East. One fact only seems to be well established: United States foreign policy is relying for its military support in that area entirely on air power. The ground troops are to be kept out of the fighting at all costs.

Now in many parts of Asia the United States is acting alone, without allies, and the burden on United States air power is thereby made even heavier. Until the Southeast Asia Collective Defense Treaty was signed recently at Manila, the United States was acting alone throughout all of Asia except Korea. The chain of Pacific treaties (singly by the United States with Australia and New Zealand, the Philippines, Japan, Korea, and now Formosa) was in essence only commitment by the United States to defend the respective signatories; the treaties do not require the other countries to help the United States in fighting outside the area of the particular treaty. There has been talk of combining the several treaties into one over-all arrangement of collective security, but until that happens the Pacific treaties still leave the United States acting alone.

The Southeast Asia Treaty Organization has, however, relieved the go-it-alone position of the United States. The eight signatories of the Treaty (United States, United Kingdom, France, Australia, New Zealand, Philippines, Thailand, and Pakistan) have carved out an area in Southeast Asia where they have agreed to act together to resist further Communist advances. But the Southeast Asia Treaty is not self-executing as the North Atlantic Treaty is, and the United States will have to get the agreement in each case of its co-treaty-members before collective action can be taken.

Also SEATO is as yet embryonic. Defense planning for SEATO has scarcely begun. SEATO may sometime evolve into an effective collective organization for the defense of the limited area with which it deals. But if it does it will be United States air and sea power which will do it. "It is only the existence of powerful American naval and air forces in southeast Asia which can give SEATO any reality," a recent leader in *The Times* (London) pointed out.

Further, SEATO leaves vast areas of the East where there are no multilateral arrangements (other than the general collectivism of the United Nations, which has not been used in Indochina and Formosa and cannot be relied on, without regional arrangements to sustain it, to relieve the United States and the other Western countries from their piecemeal resistance to the Communist advance). The United Kingdom, Australia, and New Zealand have a collective arrangement of their own for Malaya, called ANZAM. But there are no multilateral agreements for the great area of Japan, Formosa, Indonesia, Burma, Nepal, and India. If the Communists increase the pressure in any of those areas and the United States determines to use its military power to stop them, it will do so on its own, with such allies as it can pick up *ad hoc,* and relying apparently entirely on the might of its air power.

This is a signal honor which has been given to air power, and it will do its best within the appropriations it is given to be ready to carry out these difficult tasks. It is, however, the duty of air air power to point out to those who make our foreign policy what it needs to perform the duties the foreign-policy makers are putting on it. It would be a serious error to have a foreign policy based on our having a certain military strength, if in fact we did not have it. This would be a policy of bluff and necessarily would be disastrous.

So air power must say and do what it can to have it understood that present United States foreign policy calls for a two-front air power—one for the NATO area, charged with the vital duty of nullifying the Russian air-atomic threat, and another to back up our Far Eastern policy. Air power must at the same time point out that we have not yet built the strength we need for the NATO front. We are still several billion dollars short of the amount we ought to be spending exclusively for the air power we need to handle the threat from Russia in the NATO area. The present United States military establishment, although almost wholly designed for the support of United States foreign policy relating to Russia, is not strong enough for that task, let alone for an additional deployment against China. There is nothing like enough air power in our present United States military force levels to back up our foreign policy in the Far East.

Nor can we safely borrow air power from the NATO area and send it to the Far East either on permanent deployment or from time to time when crisis occurs. The most important point of our strategy in the NATO area is that United States air power be poised, in position, ready to go at a moment's notice, so that the Russians will not think they can deliver a surprise knockout blow against the United States and the rest of the NATO countries. It would be a major Russian victory if we could be trapped into diverting to the Far East against China some of the air power which ought to be defending us against Russia in the Atlantic area.

And yet apparently this is what we are planning to do. Indefinite as our Far Eastern policy, perhaps necessarily, is, two points about it do seem to stand out: (1) That our political arrangements with our Western allies and the indigenous countries of Asia are embryonic; that because of this we are relying on United States military strength almost exclusively to block Communist expansion in the area; that this policy may involve us in some form of war which may be anything from a small local operation up to atomic war with Russia and China together; and that so far as our present plans go nearly all the burden of supplying this military strength in the Far East has been put on United States air power. (2) That we are not building a second-front air power for the Far East and accordingly, if the Chinese Communists put our policy to the test, we shall have to strip our striking power against Russia in the West and send to the Far East that air power which is so vital to the safety of the NATO community, including our own American homeland.

This is obviously not satisfactory. For it reveals a serious discrepancy between United States foreign political policy and United States military planning.

Nothing we could do would close this gap overnight, because it takes a long time to build operational air power. And in fact, as the present military budget shows, there are no present plans to build this second-front air power. Why is this? Is it that thought is being given to a change in our Far Eastern policy? For there are two ways in which this gap could be closed: one by building the additional air power needed, the other by bringing our foreign policy into line with our military capabilities.

IS U. S. POLICY CHANGING?

There is some evidence that, except in the special case of Formosa where our policy of defending the islands is clearly stated, U. S. foreign policy is evolving toward this latter alternative. The signature by the United States of the Manila Pact (creating SEATO) converted a United States go-it-alone line into a multilateral policy for an important part of Southeast Asia; and a multilateral policy in that part of the world will necessarily increase the emphasis on political and economic measures to resist Communism as against military measures. Our allies of the Manila Pact have much less confidence than we in military force as the principal means by which to block Communism in Asia Also, it is being borne in on us by events and by our increasing understanding of the nature of the Far Eastern revolt against Western influence that military measures by the Western powers in Asia have a backlash unless they are carried out in such a way as to be wholly free from any taint of the old Western colonial attitude. The UN intervention in Korea should have been, and largely was, acceptable to the free states of the East, because it was juridically sound (being based on the principle of collective security in the UN Charter which so many Eastern countries had signed) and because it was obvious that no Western power was seeking to feather its own nest in Korea. The situation of the United States in Indochina was something else. There was no juridical basis at all for United States support of the French and Bao Dai. Our motives were in fact noncolonial in that we were seeking no aggrandizement of our own position but only the blocking of further Communist advances. But we were supporting French colonialism just the same; our hard-won reputation for noncolonialism was badly hurt and United States prestige in the East went sharply downhill. Then followed the Formosan crisis and again we were seeking nothing for ourselves. We were, though, trying to dominate the domestic affairs of an Eastern country with United States military might; and this attempt, following as it did on the heels of the Indochina affair, looked to Asians painfully like the old Western colonialism. In the meantime the countries which the Western powers had left alone and had not tried to save by Western military help were doing well in their struggle to resist the Communist expansion and to remain free—namely, Thailand, Burma, and Indonesia.

The impact of all this on United States foreign policy was to point the lessons: (1) that we shall do better in the East by acting multilaterally instead of in the old go-it-alone fashion; (2) that talking of almost nothing but military measures as the means of combating Communism in the East makes the Easterners think we still have the old colonial attitude toward the East and therefore is largely self-defeating; and (3) that the United States and other Western military forces can be effective in Far Eastern policy—unless we go to general war against Russia and China—only if there is first established the principle that the major responsibility for resisting Communism in the Far East must come from the Far Easterners who are still free, preferably acting collectively, and having been convinced that Western military power will no longer be used to perpetuate or revive the old domineering colonial attitude of the Western powers toward the peoples of Asia.

These lessons have not become a part of declared United States foreign policy. It will indeed be difficult to accept them, since they run counter to so many of the principles we have heretofore announced. But they may be in our official calculations more than the announcements indicate. If they are, they would point to the conclusion that United States policy in the Far East must now concentrate in its next phase on achieving the necessary political understandings with the countries of the East, including India and Japan on the two extremities, and that United States military requirements for local or partway wars against China should wait until these basic political arrangements are in fact in being. If this is or is soon to be our policy in the East, then it also is the explanation of our failure to provide the necessary air power to back up the policies we have been following to date in Asia. There is indeed no other satisfactory explanation.

Thomas K. Finletter, LL B., New York City, lawyer, was Secretary of the Air Force from 1950 to 1953 He was minister in charge of the Economic Cooperation Administration Mission to the United Kingdom (1948–49), chairman of the President's Air Policy Commission (1947–48), consultant to the United States delegation to the San Francisco Conference (1945), and special assistant to the Secretary of State (1941–44). He is the author of Can Representative Government Do the Job? (1945), Power and Policy (1954), and works on corporate reorganization.

Collective Security in the Air Age

By Robert D. Murphy

THE principle of collective security represents the keystone of American foreign policy. It is sometimes difficult, however, for persons not intimately acquainted with the events of the last two decades to appreciate the extent to which this constitutes a revolutionary transformation in American thinking. If one had been asked, fifteen years ago, to select the single document which best characterized the foreign policy of the United States, it would have been natural to choose the Neutrality Acts, under which this country not only asserted its determination to avoid involvement in foreign quarrels but went so far as to prohibit the sale of military supplies to friendly nations for hard cash. If one were given a similar choice today, it would be reasonable to select the Mutual Security Act, under which the American taxpayer provides vast quantities of military and economic aid to other free nations without asking any recompense other than that these nations participate in the common effort to maintain their freedom intact. It is doubtful that the history of mankind has ever recorded so fundamental a shift in any nation's policies in so brief a period of time.

Humanitarianism or Self-Interest?

Despite this thoroughgoing transformation in the American world outlook, there is some evidence that popular understanding of the basic premises of collective security is not so widespread as the overwhelming popular support for collective security might indicate. There are still many Americans who believe that collective security is good but not essential. In resigning themselves to the burdens of world leadership, many of our citizens have been guided more by an instinct of humanitarianism than by a profound appreciation of national self-interest. For example, it is probable that many Americans supported the Marshall Plan because of their sincere wish to help starving Europeans and had no more than a vague realization of the relationship between European economic health and American security.

It would be a mistake to regard the premises of our collective-security policy as a matter of purely academic interest. Actually, the premises we accept make a great deal of difference in terms of our policy choices in particular situations. In a true international crisis, those who believe that United States participation in collective-security arrangements is founded primarily upon a moral obligation, with others reaping the principal benefits, are likely to reach conclusions quite different from the conclusions reached by those who recognize the extent to which our own national survival is dependent upon these arrangements. Thus, it is clear that one of our continuing problems in maintaining a sound and consistent foreign policy which will have the unified support of the American people over an indefinite period of years is the fact that many of our citizens who are genuinely devoted to the principle of collective security nevertheless retain the belief that American air power and nuclear capabilities offer the United States the choice of "going it alone" in any situation where co-operation with allies is inconvenient.

It is possible, of course, to imagine circumstances in which the United States might be compelled to stand alone in defense of its freedom and its existence as a nation. Even if the remainder of this planet should pass under the control of an aggressive Communist dictatorship, it is virtually certain that the people of the United States would remain determined to wage a fierce battle for survival, however great the odds against them might be. The goal of our policy is to avoid such an unhappy situation. For all practical purposes, the policy of collective security is a *necessity,* and is more clearly so in the air age than ever before.

It is easy to see why this is true. Man's conquest of the air has made the American homeland vulnerable to attack and devastation in a manner that would have been inconceivable fifty years ago. When we remember that the air age has become the atomic age as well, and also that it is an era in which the techniques of economic and psychological aggression have been developed and refined to a point unprecedented in history, the proportions of this vulnerability become even more apparent. Finally, when we consider the vast human and material resources that have already been enveloped within the inflated Communist empire and visualize how the seizure of additional territories and resources, if not prevented, would add steadily to Communist capabilities for aggression, we can understand why the United States no longer can afford to be oblivious to events even in the most remote corners of the world.

MASSIVE RETALIATION

The notion that the circumstances of the air-atomic age offer special security advantages to the United States—that they permit us to rely exclusively upon our strategic air force and our nuclear capabilities and to minimize our dependence upon other nations—is both a gross misconception of United States policy and a naïve oversimplification of fact. It is indeed true that our superiority in long-range air power and nuclear capabilities, both strategic and tactical, constitutes the principal deterrent to an attack upon the United States and other parts of the free world. We must maintain at all costs our capacity for massive retaliation against aggression. While references to massive retaliation have unpleasant connotations, these connotations are not nearly so frightening as would be the case if present capabilities were reversed—if the Soviet bloc held clear-cut superiority in modern weapons and the means of delivery. For the foreseeable future, American strategic capabilities will represent the sine qua non of world peace and security.

But it is also important to avoid the fallacy that reliance on our strategic air power and nuclear capabilities offers a possible substitute for collective security. In the first place, it is quite obvious that the capacity for massive retaliation does not exist in a vacuum. It is a composite of many assets—mineral resources of various types, bases and other facilities for delivery, scientific and technological skills, trained military personnel, electric power and other forms of energy, and over-all industrial capacity. The United States has no monopoly on any of these underlying elements of power. We depend upon other free nations for many of the things we need. In the long run, moreover, our ability to maintain superiority over the Communist empire in the production and facility for employment of modern weapons of all types will depend very largely upon whether the people, the territories, and the resources of the rest of the non-Communist world remain free or whether they are enslaved by the Communist bloc and harnessed to the Soviet war machine.

Even more important is the fact that we cannot in any case rely upon massive retaliation as the exclusive means of deterring or defeating Communist aggression. No such reliance has ever been implied by the United States leaders. It is unfortunate that the doctrine of massive retaliation, as enunciated by Secretary Dulles and other official spokesmen of the government, has been sometimes read out of context. Insufficient attention has been given to the Secretary's reminder that local defenses will always be important, and to his repeated emphasis upon the multi-pronged nature of the Communist threat —to the tactics of political, economic, and psychological aggression and subversion and the need for appropriate means of countering all these tactics.

VARIED MEANS OF DEFENSE

In a military sense, the key principle of our present strategy is that the free world must be able and willing to respond to aggression vigorously at places, at times, and with means of its own choosing. The power of choice obviously requires the existence of real alternatives. Secretary Dulles has already pointed out clearly that modern weapons possess such immense destructive power that "even the most reckless will pause before taking action which would bring modern weapons into play." He has declared further that our policy

> does not mean that any local war would automatically be turned into a general war with atomic bombs being dropped all over the map. The essential thing is that we and our allies should have the means and the will to assure that a potential aggressor would lose from his aggression more than he would win. This does not mean that the aggressor has to be totally destroyed. It does mean a capacity to inflict punishing damage.

So long as the Communist empire maintains its huge capabilities for pursuing its imperialist designs by a multiplicity of techniques, it would be highly dangerous for the United States or its allies to place sole reliance upon any single means of defense. President Eisenhower, with his vast experience as both warrior and statesman, clearly expressed the military aspect of this proposition when he said: "We must stay alert to the fact that undue reliance on one weapon or preparation for only one kind of warfare simply invites an enemy to resort to another." Our air-atomic capabilities are priceless assets, but this fact makes it all the more important that they be used to assure our country's safety and not become its "Maginot Line."

It is unnecessary to analyze in detail the numerous elements of power that are required to supplement and reinforce strategic air power and nuclear capabilities. They include the more conventional army, naval, and air forces, facilities for resisting and countering subversion, various kinds of economic capabilities, political and psychological instruments. The United States is far from self-sufficient in these supplementary elements of power and can achieve reasonable assurance of self-protection only by combining its own strength with that of other parts of the free world. For example:

1. Most of the world's land area still lies outside the Communist orbit. In many of the areas, bases have been established through U. S.–allied co-operation which serve not only to defend the immediate locality but the United States as well. In Communist hands, additional territorial gain would represent a potential base for attack upon the United States and its allies.

2. The human being is still the most priceless asset in any power ratio. He remains the most flexible and most ef-

fective of fighting machines. All economic production stems from his energies, and his brain is the source of all technological and scientific advancement. All hopes for peace and progress rest upon the unlimited potential of the human soul. Of the human beings on this planet, only 6 per cent live in the United States. More than 60 per cent live in other parts of the free world. The ultimate fate of both the United States and the Communist empire depends upon what happens to these people, what strength they possess and what choices they make.

3. The United States is increasingly dependent upon the economic resources of other free nations. We import substantial quantities of more than fifty vital commodities that are essential alike to our peacetime industry and to our defense system. Not a single ship, tank, or bomber has been produced without commodities that we are compelled to import.

4. Despite the vast industrial power of the United States, the factories, laboratories, and technical facilities of other nations cannot be regarded lightly. As allies, the industrial power of such countries as the British Commonwealth nations, the nations of Western Europe, Germany, and Japan greatly supplements our own. With these nations under Communist control, the ratio of industrial power would be turned against us. The seizure of Western Europe alone would give the Communist bloc the means of attaining industrial superiority over the United States.

5. Many of our friends and allies maintain sizable armed forces. The combined military forces of our European allies in the North Atlantic Treaty Organization, for example, are larger than those of the United States. At present, our military aid programs are helping to maintain many divisions in various parts of the world. These forces represent a significant addition to the deterrent and defensive capacity of United States military forces.

The foregoing facts are not new. They have been cited many times, and are well known to a large number of Americans. Unfortunately, they are sometimes forgotten in controversies over particular issues of foreign policy. It is well to remind ourselves that the Communist leaders never forget them. In fact, the entire cold war may be described as a persistent effort to accumulate and exploit these basic elements of power for Communist purposes.

PURPOSES OF COLLECTIVE-SECURITY ARRANGEMENTS

In elemental terms of United States national interests, all collective-security undertakings in which the United States has engaged may be described as an effort to make sure that the human and material resources of the free world remain free and continue to serve the cause of freedom. These undertakings have assumed different forms, of course, and have been designed to serve various purposes. Some, such as the United Nations, have aimed at providing instrumentalities through which peace and progress can be pursued on a global basis through which all nations may resolve their differences and co-operate in common ventures to protect their security and enhance the well-being of their peoples. Others have been developed to meet specific problems or threats in particular regions. Some arrangements, like NATO, have involved the development of elaborate programs for creating and maintaining concrete means of joint defense. Others have depended for their deterrent effect primarily upon the pledges which the parties have given to take common action against aggression. Some have been concerned chiefly with the danger of direct military attack, while others have directed attention largely toward the threat of internal subversion.

One of the most significant differences among our different alliances is the wide disparity in the defensive capabilities of particular allies. While none of our allies could stand alone against the massive military power of the Communist bloc, some are capable of making a substantial contribution to their own defense and to the defense of the free world as a whole. Others are so weak at present, militarily and economically, that they can contribute little or nothing. It has sometimes been asked why the United States should pledge its word and expend its resources in defense of areas which, in terms of their physical capabilities, represent liabilities rather than assets. There are two answers to this question. First, it is well to remember that a given area may be a liability as a United States ally and nevertheless be a potential asset to any regime as ruthless and devoid of human considerations as the Soviet dictatorship. The Communists are past masters at squeezing blood from turnips and have no compunctions about exploiting the local population to extract a profit from an area where the United States would feel obligated to provide assistance. Second, the American people retain a strong moral interest in helping to preserve the freedom of any people who sincerely desire freedom, regardless of their physical capabilities or potential. The elements of power needed for the ultimate protection of the United States are spiritual as well as physical, and the role of Pontius Pilate is wholly foreign to the American character.

IMPLICATIONS OF COLLECTIVE SECURITY

It is difficult to generalize about the various collective-security arrangements in which the United States participates. However, in adopting the course of collective security as the cornerstone of our policy, we find that certain general implications necessarily follow. If this course is to be successful, it is necessary for us to understand and accept these implications.

Working partnerships

First, it is important to recognize that the policy of collective security involves much more than a series of commitments to take action under certain hypothetical circumstances. Our collective-security arrangements are working partnerships, some of them involving immediate action on many fronts. They offer opportunities for peacetime co-operation to foster and maintain the conditions which will help to perpetuate peace, and also to pursue other objectives which will serve the common interests of American and allied peoples.

Long-term basis

Second, it is necessary to appreciate the long-term nature of our collective-security policies. They are not designed to meet an emergency situation but to protect American and allied interests in a nerve-racking cold war which may continue for fifty or a hundred years. We cannot participate in alliances successfully on an "in and out" basis, nor can we offer leadership one day and withdraw it the next. In some instances, consistency of policy is almost as important as its substance. More than a billion people in the free world realize that their destinies may depend upon decisions made by the United States government, and it is natural that these people should place great stress upon the need for a fundamental continuity of American policy. This does not mean that we can never change our mind, seek improved approaches to problems, or tailor our actions to fit changing circumstances. It does mean that our claim to leadership requires that the key principles of our policy remain relatively constant and predictable, so that our friends in other lands can safely rely on these principles in planning their own policies and programs, both foreign and domestic.

Costs

Third, we must accept the fact that our collective-security policies cost a great deal of money and probably will continue to be costly for a long period of years. Contrary to the popular proverb, very few of the good things in life are really free—freedom least of all.

To date, our collective-security undertakings have involved the deployment of a large number of American military forces abroad and have also involved the expenditure of large sums for military and economic aid. It is important to note that the United States has not, in any instance, entered into a treaty which makes such actions a legal requirement. The need for an immediate commitment of this country's human and material resources has stemmed, like the treaties themselves, from an awareness of our own self-interest. It would be possible, without violating any of our obligations, to retain all American troops in this country and to eliminate all the economic and military assistance which we are giving. But it would not be possible to do these things and, at the same time, realize the benefits we seek from these collective-security arrangements. As is so often true, what the American people get out of such arrangements depends largely upon what they put into them. Our interests would not be served by waiting until a particular country or area had already been subjected to Communist attack before giving attention to its danger, nor by ignoring a nation's internal weaknesses until it had reached a stage of economic and political paralysis that left it teetering on the brink of collapse. Our hopes for preventing war, for checking Communist expansion, and for attracting enslaved peoples to freedom all depend upon the strength which the free world as a whole is able to develop and maintain.

It has sometimes been asserted by critics of collective security that American commitments of men and money to other nations have been designed "to buy friendship." This is an utter fallacy. It is more correct to say that they have been designed to buy strength. It is not enough that our allies remain free and remain friendly—our own interests as well as theirs demand that they be politically, militarily, economically, and spiritually strong. In some areas, where a limited expenditure of American resources enables an allied country to build and maintain military forces of much greater size and effectiveness than could be obtained by the expenditure of an equivalent sum in this country, such an expenditure by the United States is simply a matter of common sense. This point is well demonstrated by the development of the NATO military forces in Europe, where allied countries have spent three dollars of their own money for every dollar given them by the United States, and where the military vacuum that existed five years ago is steadily being converted into a position of genuine strength. The dividends we receive from our economic and technical assistance are not so readily demonstrable, perhaps, but they are no less real. It is an indisputable fact that there are many areas where a relatively small outlay of American resources can make the difference between a rising and a declining economic outlook for the entire population. And this difference, in turn, can make the difference between a nation able and willing to defend its own freedom and eventually to contribute to the security of the free world as a whole and a nation whose domination by Communism is only a matter of time.

The costs of collective security cannot be taken lightly. President Eisenhower and Secretary Dulles have repeatedly emphasized their determination to hold these costs to a minimum—to achieve maximum security for the least possible amount of money. This determination has already been translated into substantial reductions in expenditures. But our leaders have also recognized that it would be foolhardy to cut our expenditures and commitments without regard to the consequences. All of the military, economic, and technical assistance which we have given to the entire world since the end of World War II has cost less than the cost of six months of World War II, and the cost is probably smaller than would be the cost of six weeks of an all-out thermonuclear war.

Requirements of leadership

Still another important implication of our collective-security policies is the nature of our relationship to our allies. The role of leadership in the modern world involves neither the domination of others nor the possibility of a complete freedom of choice for oneself. The requirements of leadership are complex and strenuous, and the essential requirement is a profound understanding of the obligations of partnership. In its dealings with allied nations, it will never be possible for the United States to have everything its own way. Nor is it possible, if the system of collective security is to survive, for the United States to "take its dolls and go home" whenever it encounters difficulties in achieving agreement with its allies. Our alliance can endure only on the basis of co-operation, mutual understanding, and mutual respect. Secretary Dulles made this point strongly and succinctly when he said:

> It is to our interest to assist certain countries. But that does not give us the right to try to take them over, to dictate their trade policies and to make them our satellites. . . . We do not want weak or subservient allies. Our friends and allies are dependable just because they are unwilling to be anyone's satellites. . . . To maintain a co-operation of the free is a difficult and delicate process. Without mutual respect and friendship it would be impossible. We do not propose to throw away those precious assets by blustering and domineering methods.

An equally important requirement of leadership is the quality of patience and restraint. The cold war which the Soviet bloc has thrust upon the world is largely a war of endurance. The problems which we and our allies are endeavoring to solve do not have easy solutions. Some of them will not be solved this year or next. However difficult they may be, the United States government is fully aware that the answer does not lie in warfare. As President Eisenhower said in 1954, there is no such thing as a "preventive war." Instead, he called upon his countrymen "to have the courage to be patient, tirelessly to seek out every single avenue open to us in the hope even finally of leading the other side to a little better understanding of the honesty of our intentions."

NOT TO DESTROY

Admittedly, the path of collective security involves many difficulties. These difficulties are intensified by the fact that the Communist bloc, by its very nature, has certain undeniable advantages in waging its relentless attack upon the free world. It is able to expand its power not by solving problems but by creating them—not by helping others to obtain peace and plenty, but by fostering conflict and misery. And it is usually easier to destroy than to build.

In another sense, however, this fact represents what may prove to be one of America's principal long-term assets. Whatever difficulties we face, we can take comfort in the fact that our security policies are in fundamental harmony with our moral principles and spiritual inheritance. The preservation and promotion of our national interests do not require us to do injury to others. Neither our prosperity nor our safety depends upon efforts to keep neighboring lands weak and insecure. On the contrary, both are greatly enhanced by the ability of our friends and allies to maintain their freedom, to preserve political and social stability, and to move forward toward a better life for their peoples. In pursuing the course of collective security, therefore, we have good reason for confidence in the eventual triumph of our cause. We can move forward with profound faith that a nation whose deepest self-interest is on the side of humanity will ultimately be able to withstand any challenge.

Robert D. Murphy, LL.M., Washington, D. C., is Deputy Under Secretary of State. He served as United States Ambassador to Japan (1952) and Belgium (1949–1952). Previously he was United States Director of the Office of German and Austrian Affairs, Department of State (1949) and United States Political Adviser to Germany (1944).

Europe and Air Power

By Raymond Aron *

IN the current debate on air power, two phenomena, logically and factually distinct from each other, are being frequently mistaken for one another. The first consists of the rise of military aviation, which has modified the role of the two traditional arms, land army and navy; the second consists of the invention of a new explosive, atomic energy, which multiplies the firepower available for combat on land, at sea, and in the air.

The confusion can be explained easily: the two bombs dropped on Japan were launched from the air. Then public opinion, struck by the example of Hiroshima and Nagasaki, concluded spontaneously that nuclear weapons would be employed principally against urban agglomerations in the very heart of the enemy country and, therefore, brought to the target by strategic bombers. Now it has become plain that technological progress has invalidated this hasty conclusion. It is probable that, in a future conflict, nuclear weapons will be employed not so much against urban populations (a strategy which would issue in a kind of mutual annihilation) but rather against military objectives (airdromes, ports, launching sites of guided missiles and of strategic bombardment aviation). If one of the contending parties succeeded in depriving the other of the means of retaliation, it would have scored decisively: the threat of nuclear and thermonuclear bombardment would suffice to complete the surrender of the other party, which, having lost its retaliatory capabilities, would be at the mercy of its opponent.

Nuclear explosives need no longer be confined to large bombs. Technical progress has perfected lightweight bombs which fighter planes and fighter-bombers can carry, and nuclear projectiles which can be fired from large-caliber guns. Finally, there is a trend towards the substitution of electronically guided missiles for pilot-guided airplanes as a means for reaching targets situated at great distances from the likely theater of ground combat. This necessary distinction, however, should not lead us to a complete separation of the two phenomena: We speak of the "air age" and of the "atomic age." We should focus our attention upon the consequences which flow from the development of aviation in the atomic age and from the development of nuclear power in the air age, and thus emphasize the real relationship, as distinct from the erroneous identification of the two phenomena which are at the root of the military revolution of our times.

Europeans shared equally with Americans in the theoretical and applied research that resulted in the manufacture of the first atomic bombs, as well as in the efforts that went into the expansion of air power during two world wars. It was only in the Second World War that the United States hit its technological stride. Western Europe succumbed, in 1940, to German occupation, and the German research organization fell apart upon the collapse of the Third Reich.

European Memories

The memories which the peoples have stored up from preceding conflicts and the presentiments which they now harbor as regards a future conflict account for the profound difference between the

---

* Translated by Robert Strausz-Hupé.

American and the European consciousness. For the United States, the two wars of the twentieth century were colonial wars. They were waged—especially the second one—according to the unwritten law of the American economy, namely, the reduction of human costs by the increase of expenditure on machines. A type of combat that does not count the costs of matériel in order to save the lives of soldiers will certainly not be squeamish about the destruction of enemy lives and property in theaters of operation. Such a war of matériel whenever it is being waged upon foreign soil will be waged efficiently, without scruples and without hesitation. It poses some pressing questions for these peoples whose countries serve as battlefields.

In World War II, Britons and Americans did not perhaps take the initiative in launching strategic bombing. The bombing of English cities by the *Luftwaffe,* interpreted by the British as an initiative, was intended perhaps by the Germans as a retaliation against the first "indiscriminate" attacks against the cities of the Ruhr basin. To be sure, the Germans were, at that time, in a position to extend this type of warfare. The British allocated to strategic aviation a large part of their resources, probably a larger one relatively than any other country at war. What was the effectiveness of strategic bombing during 1940–44? This question is of merely historical interest, given the novel kinds of explosives now available. It is a fact, however, that German war production increased in the face of constant and increasingly heavy bombing.

The systematic destruction of German cities—of residential sections as well as industrial plants—has seared the consciousness of the peoples of Europe. It is possible to argue that total national mobilization of economic and military resources, as practiced in World War I by all European belligerents, led logically to the selection of the sources of economic strength (towns and factories) as legitimate military targets. Furthermore, it can be argued that, in any case, the very lack of precision of air bombing effaced the distinction between military and civilian objectives and that the morale of a population constitutes a legitimate as well as a vulnerable target.

LIMITED WAR AND TOTAL WAR

The weight of these arguments notwithstanding, the peoples of Europe resented profoundly the disproportion between human costs of air bombing to those who practiced it and the human costs of air bombing to those who had to suffer it. Britain and the United States, following the traditions of sea power, engaged relatively small complements of men, equipped with expensive matériel, in order to obtain far-reaching results. But this evolution leads to a stalemate. The British people now see themselves as being exposed to the same dangers as the peoples of the Continent, and the American people, in their turn, are beginning to suffer the same anxieties. Every civilization known to the ages experienced the tribulations of war. But the ***limitation of war*** appears to have been one of the preconditions of the prosperity and the very survival of civilization. Neither Athens nor Sparta ever recovered from the Peloponnesian War. The religious wars, culminating in the Thirty Years' War, instilled in the combatants an abiding distaste for theological controversies conducted with firearms. The fall of the French monarchy closed a long epoch of limited wars—wars for limited objectives, conducted with limited resources and with weapons of limited destructiveness and by belligerents who scrupulously observed a common code of good manners. The French

Revolution opened a quarter of a century of ferocious battles. In the nineteenth century, a happy conjunction of circumstances barred the geographical expansion of conflicts and the all-out mobilization of nations. The one conflict that came closest to being a total war in the modern sense occurred in the United States and figured as a civil war. Europeans, contemplating the employment of air power in World War II, believe that air power, reinforced by nuclear weapons, has guided mankind into a fatal path which must lead to the ultimate destruction of one or all of the belligerents.

Perhaps Europeans are wrong in assuming that nuclear and thermonuclear weapons constitute so original a departure from older techniques of warfare. After all, the most primitive weapons sufficed to annihilate Carthage. (It should be noted, however, that thermonuclear bombs represent not only a mere increase in firepower but also, if we accept the opinions of certain scientists, an unprecedented genetic threat to the human race.) Although the total destruction of cities may not be a novelty, there has occurred an essential change that sets off war waged with air and nuclear weapons from the warfare of the past: A war that issues in immeasurable destructiveness ceases to be a "reasonable" means for settling conflicts between political units and leads us back to the primitive struggle for simple survival.

The Americans are probably right when they remind us that there is, in the atomic age, one alternative which is worse than war, namely defeat. But Europeans are not wrong when they hold that, in this age, avoidance of war is better than victory. Nor are they wrong when they question the worth of a strategy which places greatest emphasis upon the preparation of that kind of war which would be so horrible that no one will dare start it—except as a last gesture of desperation.

EUROPE'S SMALLNESS

Western Europe cannot fail to develop an air and atomic outlook that differs significantly from that of the United States. In Western Europe, that is, Europe west of Berlin, distances are not so large as to permit aviation to modify radically man's awareness of space and the conditions of collective life. In 1954, one could—not counting political restrictions—travel overnight from Paris to Berlin by rail just as one could travel overnight from Paris to Nice. No doubt air travel saves many hours on the routes from Paris or London to Rome and Athens. But air travel does not change, within any national territory of Western Europe, the rhythm of human relations between region and region, and even relations between country and country are altered only slightly by air transportation. In the United States and the Soviet Union, aviation has made possible commodity exchanges and human communications which would have developed, had they depended on means of surface transportation, either much more slowly or not at all. This is not the case in France.

The political units of Europe are not designed to the scale of air warfare. This discrepancy between the technology of the twentieth century and the traditional politics of Europe manifests itself in three ways. Because of its inadequate "depth," no European country can defend its air space. If a bomber travels at the rate of 650 miles, then Paris lies within less than forty-five minutes' travel time from Soviet air bases in Eastern Germany. All European countries contain areas of human and industrial concentration which are essential to their existence as political and economic powers yet are extremely vulnerable to air-atomic attack, such as the Ruhr in Germany, the Paris region in France, and the London agglomeration in England. The density of European populations becomes an anachronism if the air age becomes the age of atomic wars. Lastly, the nations of Europe no longer possess the financial and industrial resources required for the development of a great aviation industry and a great nuclear power industry. Great Britain has allocated relatively large resources to both. She possesses a productive potential that exceeds substantially her financial capacity. The aviation budget of France has risen to about 750 million dollars and includes the entire research expenditure of the aviation industry. A European nation that seeks to maintain a large aeronautical industry must develop export markets—as does Great Britain.

Europeans cannot modify the natural limitations of their environment. Financial and economic limitations, however, need not be final. The lowering of production costs may enable small nations to manufacture nuclear weapons. Just as certain cheap weapons (bazookas and land mines) tend to neutralize expensive weapons (tanks), so certain types of missiles, manufactured at relatively low costs, may conceivably take the place of the extremely costly bomber. At present, the costs of scientific research and of weapons are very high; consequently, the big have a considerable advantage over the small. But this phase may be of short duration. When Switzerland and Sweden, too, are able to produce atomic bombs and electronically guided missiles, then science will be able to reduce the margin between smallness and bigness.

MONUMENTS

To the above considerations another one, albeit a trite one, must be added. All Europeans—Frenchmen, Germans, Italians, and Englishmen—are more deeply attached to old stonework than Americans. For most Americans, cities are tools—complexes of technical devices for ensuring human existence against climatic rigors. European cities are either themselves monuments (Venice and Bruges) or contain a large number of monuments, heirlooms of the ages. A kind of war that, even though most human beings could be supplied with safe shelters, blots out the accretions of the past horrifies the cultivated European.

AMERICAN PUBLIC OPINION

American public opinion is aware of these motives which shape European attitudes—quite unreasonably from the American point of view—towards air power. The vulnerability of Europe, lack of space, and the unique value of monuments—all these conspire to prevent the allies of the United States from viewing objectively the facts of the atomic age. Six years ago, Europeans dwelt upon the risks, if not the quasi certainty, of invasion and occupation in the case of a general war. The spokesmen of the Old Continent argued that American strategy would abandon Rome, Paris, and Frankfurt to the Soviet hordes, while confining itself to the destruction of Moscow, Kiev, and Kharkov. What would there be left to "liberate" after years of occupation, mass deportation, and the liquidation of the elite? Since 1950, American strategy, to still these protests, has erected a barrier in Europe itself. Several batteries of American atomic canons stand between the Iron Curtain and the Rhine. The spokesmen of Europe now profess themselves dissatisfied with that arrangement and denounce the weakness of the American barrier (which will be overwhelmed by the Soviet tide) and the ruthlessness of future land battles, fought with atomic weapons, which will leave nothing in their wake that is worth keeping.

American commentators rightly underscore the contradictions of these successive or simultaneous arguments. If one relies entirely on air power, one must reconcile oneself to the temporary occupation of territory close to enemy power. If one proposes to secure Europe against invasion, one must put large armies into the field or employ tactical atomic weapons. Since it was impossible, from 1950 to 1954, to obtain French consent to German rearmament and since, therefore, the effectives available to the North Atlantic Treaty Organization remained inferior to the minimum estimate of the General Staffs, opinion shifted inevitably to the inclusion of atomic weapons in military planning. Five years ago, it seemed reasonable to assume an eventual stalemate of atomic power, once both sides had accumulated large nuclear stocks, and hence an eventual return to conventional techniques of warfare. Today, this assumption has been replaced by another: Whenever and wherever war is waged between the Atlantic alliance and the Soviet orbit, it will be atomic. Again, Europeans raise their voices in protest: After such a war, there will be survivors, no victors. To win, must one lose the reasons for winning?

It is true that Europeans convey the impression of being equally hostile to each of the three possible strategies of the Atlantic alliance: concentration upon air power at the risk of the occupation of marginal zones; mobilization of a larger army in order to forestall atomic war; and the general use of nuclear weapons in order to offset Soviet superiority in conventional weapons and effectives. It is true that there seems to be no feasible fourth strategy. But it is no less true that American public opinion will be not much less reluctant than European public opinion to elect any of these strategies once the United States has to face up, on its own account, to the consequences of that strategy.

The strategy that staked everything upon strategic bombing was readily accepted as long as the Soviet Union lacked nuclear war heads or the means of delivering them onto American cities, or, in other words, as long as Europe, invaded and bombed, would have served the Soviet Union as hostage. On the day when American public opinion concluded—rightly or wrongly—that American cities would be struck no less severely than Russian cities, it displayed no greater enthusiasm for this kind of all-inclusive war than did European public opinion.

True enough, American public opinon consented to the expansion of ground forces, 1950 to 1954. This effort was not greater, measured by American resources, than that made by Europe. But American public opinion did not relish land battles fought with conventional weapons, and pressed for an armistice in Korea, although victory had not been won and cessation of fighting in Korea risked hastening the advance of Communism upon Southeast Asia. At this moment, American public opinion accepts readily enough the use of nuclear weapons in land warfare, since this strategy makes possible, for the time being, a reduction of the size of the Army and the Defense budget. Americans would hardly favor such a strategy were it to choose their own country as the theater of operations.

PRESENT SITUATION

I will be told that I am guilty of European "negativism" and that I refuse to take things as they are. This, I trust, is not the drift of my argument.

I do not venture to propose a strategy[1] in place of the one which the General Staffs have elaborated. I confine myself, here, to the description of the situation to which the development of air power and of nuclear explosives and the rivalry between the West and the Soviet empire have given rise.

This rivalry belongs to the species of great conflicts between sea powers and land powers which mark the course of history. Athens could not interdict Sparta's incursions upon the hinterland of the great trading port; Sparta could not interdict the attacks of Athenian triremes against the coastal towns and shipping of the Peloponnesus. Similarly, from 1945 to 1950, Soviet armies could occupy Europe, and American bombers could ravage the cities of Russia.

In 1950, the Korean War raised the specter of a general war, for then no one knew whether that war was merely a marginal conflict or the beginning of a world war. Then Europe became aware of her vulnerability. With American help, a barrier on land was lowered against the East. Yet for a variety of reasons that barrier remained fragile; the manpower superiority of the Soviets was too great and totalitarian government could always impose heavier burdens upon its peoples. But now the Soviet Union made up for its late start in the race for nuclear weapons and strategic air power, just as Sparta and her allies built ships in order to meet Athens at sea. The Atlantic camp, threatened from the air by Soviet progress and inferior on land despite its efforts, has sought to forge its defensive superiority from a tight integration of air power and land power, each endowed with nuclear weapons. This strategy represents a reasonable step in the dialectic process that flows from the relationship between land power, on the one hand, and sea or air power, on the other hand.

This evolution will be fraught, in the near future, with two consequences: it will make total war between the two coalitions less and less likely; it will make it impossible for both sides to employ the threat of total war as a political-diplomatic weapon. It follows that those regions where conflict cannot be localized will be relatively secure (Europe) and that, by contrast, those regions where the stakes do not warrant a general war will be relatively unsafe. Nothing will happen in Europe, because war could be fought with thermonuclear bombs, whereas, in Asia, Communism can advance unhindered, because neither Laos nor Cambodia nor Thailand constitutes a *casus belli atomici.*

The pressing question which this state of affairs poses is how to define a strategy suitable for the waging of a conflict that must not be settled by resort to total war. What arms can be employed effectively in local hot wars? What are the chances of the West's preventing Communist expansion in times of cold war?

This is the immediate question. The long-range question is graver still: Is it possible to go on indefinitely preparing for a war that will never take place? If we prepare for a kind of war that can be waged only by striking with the most terrible explosives at all the sensitive points of the enemy country, are we not entering upon a path that has no other ending than common catastrophe?

The above reasoning may run into one formidable objection. We assumed, in each instance, that the loss of life and property will, in a future war, be due to the intervention of air power. This proposition has not been verified. Can one not argue that it is inconsistent with experience? Is lengthy trench warfare not more ruinous for the belligerents than aerial operations of brief duration, yet of decisive consequences? I do not maintain that air power as such increases the costs of war. The war in France in 1940 was relatively cheap for the victor as well as for the defeated. Weapons that permit the application of a strategy of annihilation, that is, the rapid destruction of enemy *armies* and the enemy's will to resist, tend to reduce the costs of battles. This result accrues to the use of air power whenever the belligerents are unequally endowed with matériel, even when—as, for example, in Asia—the inferior party seeks to retaliate by recourse to another form of combat (guerrilla warfare). It is the indiscriminate attack against cities which, in the case of an approximate equality of air forces, increases immensely the costs of war. Since two atomic bombs were dropped upon cities the world awaits, perhaps wrongly, the repetition, in the case of total war, of these horrible massacres. It is difficult to imagine an atomic world war without envisaging the destruction of the civilization which we know.

---

[1] For one thing, this is not the place to explore what kind of strategy the West should choose.

THIS DANGER ZONE

It is possible to compress our findings into the following general statements: Strategies aimed at whole populations, and not merely at armies, have increased tremendously the terrors of war. Secondly, war threatens the very life of civilizations when it is conducted with means of destruction that are vastly superior to available means of construction, and when it effaces the traditions and withers the feeling of security underlying the existence of the human community.

We cannot rid ourselves of the dismal feeling that we have entered this danger zone. Are Europeans more deeply convinced that history has reached a crisis than are the American people? Perhaps. The nearness of danger often distorts judgment; it also sharpens awareness of the essential.

Raymond Aron, Doctor of Letters, Paris, is professor at the Institut d'Études politiques and the École Nationale d'Administration. He is contributing editor of Le Figaro and author of Le Grand Schisme (1948), Les Guerres en Chaîne (1951; published in the United States as The Century of Total War), and other works.

The Role of NATO's Air Forces

By Alvin J. Cottrell

THERE is little doubt that at the present time the prime deterrent to a Soviet sweep to the Channel is the possession by one of the North Atlantic Treaty Organization powers—the United States—of superiority in nuclear weapons and delivery systems. Soviet policy in the postwar years has been concerned most of all with neutralizing this disparity. United States policy has been directed at the maintenance of a substantial nuclear advantage and at the reduction of the Soviet advantage in conventional weapons. The debates on disarmament in the United Nations Disarmament Commission reflect the conflicting views of the two countries. The Soviets have consistently urged that disarmament begin with the more "sensitive" areas (nuclear stockpiles) and proceed to less "sensitive" weapons (ground forces). The United States has just as consistently supported a reverse course. Thus each of the two great powers clearly recognizes the area of its own superiority.

In a war for the Communist domination of the world, happily still hypothetical, Western Europe would presumably be the area of first contention if not of final decision. But how is Western Europe to be defended? Under the rules of traditional or conventional warfare the role of the NATO tactical air forces would be to interdict the enemy's air and land power and so reduce the disparity between Communist and anti-Communist strength in the air and on the ground. NATO's air forces, which on paper number over five thousand planes, would thus serve as a screen which—it is hoped—would diminish the enemy's initial striking power to the extent that his forces penetrating the West's defense perimeter would at most equal in strength those of the Allied Air Command in the NATO area. But in view of the possible use of nuclear weapons would the tactical air forces still play the same role?

Nuclear or Conventional Warfare?

An objective analysis of the state of NATO's defense organization makes it obvious that sufficient conventional forces to defend Western Europe from a Soviet invasion do not now exist under NATO's command. At the present time, Europe must be defended by nuclear weapons, else it cannot be defended at all. This view can be stated more precisely as follows: Either atomic-stockpile discouragement of large-scale attacks by the Communists will be successful, or the West's nuclear stockpiles will be required to destroy Communist predominance achieved by conventional weapons once war has broken out. In either case the decisive factor will be the relative strength of nuclear stockpiles.

A point might be reached in the nuclear race at which the supremacy heretofore held by the United States in air-nuclear power would be neutralized by the Soviet Union. At this point the anti-Communist states and especially the United States would be faced with a most important decision: If the Soviets move their forces either westward to the Channel or southwestward into the rimlands of the Mediterranean, should the United States attempt massive retaliation with nuclear weapons, knowing full well that such a course would invite atomic destruction to her own shores? An answer in the affirmative might eventually save Europe and perhaps most of the world from enslavement, but the price might be a fearful one. American policy in the Korean and Indochinese conflicts suggests a negative answer, but on those occasions the blue chips were not down. Nevertheless, these two recent crises, particularly the Korean one, deserve some careful thinking. The United Nations action in Korea was an instance of limited warfare. As Bernard Brodie has pointed out, "It is noteworthy that narrow limits were imposed, and that it was obviously the stronger Power which imposed them and made them stick."[1] He adds that "these facts render dubious some of the easy generalizations of our time concerning the inevitable totality of modern war" and "the inexorable necessity to achieve total victory rather than more limited and modest goals."[2] The writers of our time are far too much inclined to hold to the inevitability of atomic warfare. In Korea, both sides restrained their power. Perhaps the Communists have revised their Marxist-Leninist doctrines to meet the world situation as itself revised by the development of nuclear weapons. They may now well settle for less than the world. They may settle for what has heretofore been an intermediate objective—the possession of Western Europe.

The policy of the Soviets is now one of slowly maneuvering the United States into a war with weapons of the Soviets' own choosing, that is, conventional weapons, which they would be certain to win. This implies an atomic stalemate, or rather an atomic-stockpile stalemate. The possibility of this has been stated by Dr. Robert Oppenheimer:

> I may, however, record my own casual, perhaps too rough guess as to how the U.S.S.R. stands in relation to us in the field of atomic munitions. This does not refer at all to other elements of armament. I think that the U.S.S.R. is about four years behind us. And I think that the scale of its operations is not as big as ours was four years ago. It may be something like half as big as ours. . . .
>
> The very least we can say is that looking ten years ahead, it is likely to be small comfort that the Soviet Union is four years behind us, and small comfort that they are only about half as big as we are. The very least we can conclude is that our twenty-thousandth bomb, useful as it may be in filling the vast munitions pipelines of a great war, will not in any deep strategic sense offset their two-thousandth. . . .[3]

If Professor Cecil F. Powell, British 1950 Nobel Prize winner in physics, is correct, a degree of neutralization in atomic weapons has already been reached. Addressing a meeting sponsored by the London Co-operative Society, Profesor Powell said that the United States had a stockpile of about four thousand atomic bombs and the Soviet Union one of about one thousand.[4] Perhaps the price the West and the United States must pay will be the loss of West Europe, for the neutralization in nuclear weapons returns the issue to conventional armaments.

NATO'S ARMED STRENGTH

On paper, where no battles are really won, NATO's strength is not unimpressive. It possesses approximately 60 divisions (both infantry and armored) and upwards of 5,000 tactical airplanes. Only approximately 12 of the 60 divisions are fully equipped and adequately manned to do battle with the Soviets. Russia's standing army reportedly consists of some 175 combat divisions, including 80 mechanized and tank divisions as well as 50 artillery and antiaircraft divisions. She has 20,000 combat planes. The combat divisions can be doubled in strength on short notice. Thirty of these present combat divisions, 20 of them motorized and armored, are held poised in the Soviet East German occupation zone as the possible first wave in any action in Western Europe. They are supported by 3,000 planes and backed up by approximately 70 satellite divisions.[5] Among its 5,100 tactical aircraft, NATO has fighters, fighter-bombers, light bombers, and reconnaissance planes. But the weaknesses of the NATO air forces may be seen by taking a look at the Royal Air Force contingent. Of the 1,500 aircraft marked for NATO by the Royal Air Force—next to the United States contribution the largest available to NATO—many units are still equipped with outdated Meteor and Vampire jets. Until these are replaced by Swift, Hunter, and Javelin fighters, the RAF contingent will remain short of its clear potential.[6]

---

[1] Bernard Brodie, "Nuclear Weapons: Strategic or Tactical," *Foreign Affairs,* Vol. 32 (January 1954), p. 228.

[2] *Ibid.*

[3] J Robert Oppenheimer, "Atomic Weapons and American Diplomacy," *Foreign Affairs,* Vol. 31 (July 1953), pp. 526–28.

[4] As quoted by Drew Middleton, *New York Times,* February 27, 1955, p. 1.

IMPORTANCE OF GROUND FORCES

The most recent test of conventional tactical air action has been in Korea. At that time the United States probably did not possess tactical atomic bombs, but it did possess strategic bombs. They were not used. It is ridiculous to argue, as did some officials in high office, that the use of these bombs could not have brought China to her knees. Hiroshima and Nagasaki attest to the fact that atomic bombs contributed greatly to breaking Japan's will to fight. In Korea, the bombs were not used because of diverse nonmilitary considerations. At that time America's superiority was probably more massive than at the time of the Hiroshima and Nagasaki blasts, when two bombs were all that she possessed. The lessons in Korea are worth studying, for they are relevant to any discussion of the role of tactical air power in the defense of Western Europe. While the Korean War amply demonstrated that control of the air is an essential precondition for successful large-scale military operation, it emphasized even more significantly the primary importance of ground forces. Total impotence in the air does not prevent armies from fighting offensively. The Chinese proved this in Korea, and later Dienbienphu fell though the Vietminh had no planes. Germany fought long and well on Italian, French, and finally on German soil in the face of overwhelming tactical and strategic air superiority. These are significant facts for those who would rely primarily on air power or who would stress air power above all other kinds of military power. Tactical air forces in Korea carried out well their mission, but it must be emphasized that numerical and qualitative superiority on the ground was not in the same unfavorable ratio as that which would be faced by the NATO forces.

TACTICAL AIR FORCE

The great difficulty in gauging the role of NATO's tactical air forces involves the question as to whether NATO's defense area can be protected long enough to afford these forces sufficient time to execute their mission. In World War II, despite the shortages of petroleum brought about by the Allied strategic bombing, first on Ploeşti and then on the Leipzig refineries, the Germans still possessed in the late stages of the war sufficient tactical aircraft to delay the Allies as they penetrated deeper and deeper into the Reich. In many instances, however, the swiftness of the American armored advance caught these planes before they were able to take off.

---

[5] Axel von dem Bussche, "German Rearmament: Hopes and Fears," *Foreign Affairs*, Vol. 32 (October 1953), p. 70. The author is a former major in the German armed forces.

[6] Drew Middleton, "NATO Changes Direction," *Foreign Affairs*, Vol. 31 (April 1953), p. 43.

Part of the mission of the tactical air force in Korea was to drive from the skies the small North Korean air force. Although political decisions placed Manchurian targets beyond the reach of the United Nations air forces, sound tactics enabled them to prevent MIG's from approaching within seventy-five miles of the battle line. Along with its mission of driving from the skies the North Korean air force, the tactical air force was used in attacks against concentrations of supplies, matériel, and personnel deep in enemy territory. These tactics were highly successful, owing to the fact that it is much more feasible to deal with these elements when they are in rear positions than when they are dispersed and ready for battle.[7] Thus, barring a nuclear war, it appears that the mission of tactical air forces would remain what it was in World War II and in Korea: defense, counterattack aimed at blocking off the theater of operations, and tactical cooperation with ground units. The NATO air forces would provide close support for ground armies and launch an offensive action against enemy forces in the field and against enemy supply lines. This offensive could be carried out with either conventional or atomic tactical bombs. While the mission of tactical air force has not changed greatly, its relative effectiveness has been altered by the new instruments of warfare, by the development of new techniques, and—in Europe—by geography. The use of tactical atomic bombs, however, would in all likelihood lead to full-scale nuclear warfare. This prospect would tend to discourage their use.

DEFENSE OF WEST EUROPE

An active defense may not be effective against a surprise attack. The NATO defensive organization could be caught completely unprepared and thus rendered unable to carry out its mission in subsequent operations. Furthermore, the entire area could be effectively paralyzed by the use of nuclear missiles in a relatively short period of time. Airfields, communications, supply depots, and ports of debarkation all lie crowded together on a narrow strip of land where they are continuously vulnerable to attack by the Soviet air force. If West German territory were denied to the West the NATO forces would be reduced to a completely inflexible defense, a situation which would be even more disastrous under modern strategic concepts than under earlier ones.[8]

It is a fundamental tenet of anti-Communist strategy that West Europe should be defended as far to the East of the Rhine as possible. Hence geography, though frequently obscured because of the headlines given to German fighting units, has as much to do with the United States insistence on a German contribution to NATO as does Germany's economic and demographic resources. Soviet policy has not only been directed against the rise of a German army; it has also sought to neutralize Germany in order to diminish still further NATO's shallow area of deployment. Here again the lessons of

---

[7] Brigadier General James Ferguson, United States Air Force, "The Role of Tactical Air Forces," *The United States Air University Quarterly Review,* Summer 1954, pp. 31–32

[8] Erich Dethleffsen, "The Chimera of German Neutrality," *Foreign Affairs,* Vol. 30 (April 1952), p. 369 The writer was a general in the German Army.

World War II are helpful. In order to absorb the initial German blow and prepare her own victorious comeback, the Soviet Union relinquished an area greater in size than the one the NATO forces are presently assigned to defend. There are now no natural barriers—the Rhine is not an effective antitank ditch against a Western thrust of Soviet forces.

The role of NATO's tactical air forces is theoretically clear, but their ability to execute their mission is doubtful because of the narrow base of operations and the inadequacy of the ground forces they will be required to support. Theoretically, Strategic Air Command, by a deep interdiction effort, would be cutting off the enemy ground offensive from its supplies and reinforcements while the NATO air and land forces would be charged with the responsibility for erecting an air barrier against the advance of enemy ground units and at the same time participating in mopping-up operations directed against advanced Soviet elements. Should the NATO tactical air forces be unable to sustain constant all-weather operations in conjunction with ground forces the NATO area could be swiftly overrun. Men who fought in the Battle of the Bulge, December 1944, as did this writer, will never forget that the Germans most nearly achieved a breakthrough when snowstorms grounded the tactical air forces.

OFFENSIVE CAPABILITIES

The anti-Communist states are on the defensive. Their only offensive capabilities have a twofold character: (1) to deter aggression by posing a threat which will make aggression too risky, and (2) to counter an attack. In the days when conventional bombs were the only ones available there was little difference between attacking and defending forces. While the opponents may have been in different states of readiness, once the initial assault had been absorbed it was possible to mobilize manpower and industrial resources to counterbalance the capabilities of the aggressor. This fact represents a fundamental difference between World War II and future wars. In World War II the United States had nearly two years to mobilize fully. It was nearly three years after Pearl Harbor before the United States was able to leapfrog its way across the Pacific to within striking distance of Japan. Future conflicts will not likely again afford such leisurely recuperative opportunities. In the next war the period of mobilization may be measured in hours. In World War II tactical aircraft operated with a range of 300 miles and an average penetration of enemy territory slightly over 200 miles. But "progress" has brought new achievements: recently a squadron of Thunderjets flew nonstop to England from United States bases nearly 4,000 miles away. Nuclear bombs delivered by air can shrink weeks or months of blitzkrieg into a few days or even a few hours of atomic exchange.

It is nearly impossible to determine the "absorptive capacity" of any nation today; and it is even more difficult to determine the "absorptive capacity" of nations of the size of Russia and China. Ten or twenty well-directed hydrogen bombs could make "ordinary organized life impossible" in Great Britain.[9] This judgment would also apply to a country like Japan. Without absorptive ability, an air force cannot get off the ground. Nor can the most formidable of armies stand off an enemy. NATO could lose World War III in a single attack. An unnamed high NATO official describes the urgency of the situation in the following manner:

---

[9] Cecil F. Powell as quoted by Drew Middleton, *New York Times*, February 27, 1955, p. 1.

At present, even if NATO force requirements were fully met, substantial portions of those forces, if deployed in conventional manner, would be destroyed or disrupted before they could be brought to bear against the enemy.[10]

What conclusions can we derive from these observations as they relate to the role of tactical air forces in NATO? Those forces are primarily a counterattacking and not an offensive weapon. In carrying out their mission they suffer the disadvantage of operating from too narrow a base of operations against an enemy who is too close. The Iron Curtain descends at one point less than a hundred miles from the Rhine. This means that the period of alert vouchsafed to NATO would be practically nil. The ground forces which the tactical air forces are to support are inadequate for resisting the Soviet advance until such time as tactical air forces could go into action. Technologically, tactical air force is relying on too much outmoded jet equipment. The interceptor aircraft in service are better suited to defending areas a considerable distance from the enemy offensive air power than for close support of ground forces. These strictures pertain only to conventional warfare, for it is the contention of the writer that Europe is indefensible anyway in nuclear war.

DEFENSE THROUGH DETERRENTS

Sir Winston Churchill's hydrogen bomb speech in the House of Commons on March 1, 1955, hints at what Sir Winston believes is the only way by which Western Europe can be defended. The Prime Minister called the policy of his Conservative government one of "defense through deterrents." This, in fact, has been the West's defense throughout the five-year period of its atomic hegemony. But that deterrent is rapidly being neutralized by the ever growing Soviet stockpile of atomic and thermonuclear weapons. The West can be defended only if the deterrents are so formidable that they need not be used. Atomic weapons in the possession of the West have thus far served this purpose. Now, however, conventional weapons must be made equally formidable. While the Soviets have made a tremendously successful effort to better their nuclear position, West Europe has made little progress in improving its position against the Soviets in conventional armaments. The policy of the United States since 1950 has correctly placed its emphasis upon conventional armaments as the means for redressing the military balance of power in Western Europe. The United States will probably soon have enough deterrents in the form of atomic bombs, since it is possible in an atomic stockpile race to reach a point of diminishing returns. The primary race in the nuclear field will then be in the development of delivery systems.

The control of Western Europe would greatly improve the Soviet Union's delivery capabilities vis-à-vis the United States. America's decision to rely primarily on "massive and instant retaliation" at times and places of its own choosing was apparently prompted by the realization that unless the Western European nations contribute more conventional forces to NATO there is little use in trying to build conventional forces sizable enough to deter the Soviets if they intend to invade Western Europe. Certainly the twelve German divisions which have been the source of so much American-French tension will not be sufficient to redress the imbalance of conventional forces which at present so overwhelmingly favors the Communists in Europe. NATO's tactical air forces will in all likelihood acquit themselves well once NATO's other components have reached the stipulated levels of strength. They will still be at a geographic disadvantage, but little can be done to alter this fact without provoking the war which NATO strategy seeks to avoid. The demographic and economic structure of Europe could tolerate much larger ground forces than the European nations have thus far been willing to contribute. The risks of war must be made too great as regards not only nuclear but also conventional warfare. The only sound policy of "defense through deterrents" is to be strong in both kinds of weapons. If the NATO powers continue on their present course they will be at the mercy of the Soviet Union, and the rulers of that nation have no mercy. The West's only hope then for survival would rest on the unlikely contingency that the present struggle for power within the Soviet Union will prevent its rulers from taking advantage of the dilemma into which their diplomacy is so skillfully maneuvering the West.

---

[10] Robert Kleiman, "First Blueprint for Atomic War," *U. S. News and World Report*, February 25, 1955, p. 27.

Alvin J. Cottrell, Philadelphia, Pennsylvania, is instructor of political science in the University of Pennsylvania and research assistant in the University's Foreign Policy Research Institute. He served in World War II with the Sixty-eighth Tank Battalion, Sixth Armored Division, United States Third Army, in the campaigns of Normandy, Northern France, Ardennes, the Rhineland, and Central Europe.

Air Power in the Modern Middle East

By Paul M. A. Linebarger

IN a world increasingly troubled by the specter of strategic bombardment while at the same time more keenly conscious of the tactical limitations of air power, the problem of the Middle East is indeed an interesting one.

It is possible to guess at the strategy of the future and such a guess can be as scientific and valid as any estimate about a strategy that has been elaborated theoretically but not applied practically. The strategy of the past, though valid in many fundamental respects, has been modified irreversibly by the appearance of atomic and thermonuclear weapons.

Considered as an area, the Middle East[1] presents three outstanding and significant characteristics with respect to air strategy. First, it is a passive area. Second, it is a zone for air bases. Third, it is a petroleum source.

The Middle East is still a passive area in a world of air strategy. Though press reports from time to time indicate that Egypt is planning to undertake the manufacture of aircraft with the aid of German technicians, at present no Middle Eastern state has undertaken the manufacture of military or civil aircraft. Limited aircraft manufacture is probably feasible in Turkey. Israel possesses, at the least, the human and technological resources for the production of aircraft. But neither in these countries nor in Egypt nor in the more backward Arab states are aircraft actually being produced or likely soon to be produced. For the present and the near future air power will not really originate in Middle Eastern territory.

Whatever air power may be exercised will be exercised by air frames, engines, and weapons produced either in the free world or in the Communist world. In some cases the aircraft may operate under the actual name, flag, and legal ownership of the producers, whoever they may be. In other instances the title may be transferred to Middle Eastern states and the aircraft in turn be employed by those states. Such a dependence on externally produced aircraft does not augur the playing of independent roles as air powers by the Middle Eastern States.[2]

Secondly, the Middle East is an important forward zone of the free world. Possession of this zone is, resources apart, a vital element in the early-warning and forward-support-point tactics requisite to free-world strategy in the event of a conflict with Soviet power. The Middle East cannot be called a buffer zone if none of it is in Soviet hands and if its neutrality is a neutrality essentially unfriendly to the Soviet Union.

Radii of 1,000, 2,000, and 5,000 kilometers drawn from the major air bases of the Middle East comprise many of the most sensitive targets of the modern world in both the Soviet and free-world spheres of influence.

---

[1] For the purpose of this discussion the Middle East comprises the Arab states of Arabia proper and the Persian Gulf, together with all the states of the Levant, including Turkey, Israel, and Egypt

[2] The recent seizure of Burmese Spitfires by the Lebanese authorities is a case in point The Israeli had allegedly sold the Spitfires because they had obtained more modern jet fighters and were able to secure a good price from the government of the Union of Burma. The government of Lebanon seized these Spitfires pending a clarification of their precise title and an examination of the military value to Israel of such a sale.

Third, the Middle East is vital to the interstrategy period of air power because of its role as a massive, even a decisive, supplier of petroleum.

RECENT MIDDLE EASTERN STRATEGIES

Western discussions of international affairs often overlook the fact, tragic for the peoples and leaders involved, that the Far East and Middle East lost their last pretenses to autonomous strategic existence only in the very recent past. For example, the final death of China as a great power can be marked either from the shocking destruction of the suicidal wooden fleets at Foochow by the French ironclads on August 23, 1884, or the arrival of the international army in Peking on August 14, 1900. In the Middle East, Turkey held on even longer than China and survived as some kind of a power on the world scene until the conclusion of the armistice at Moudros on October 30, 1918. At the end of World War I Turkey's strategic position underwent a profound change when the Ottoman Empire collapsed along with her ally, the German Empire, and dissolved at the same time as her ancient enemy, the Czarist Empire.

In the Far East, China collapsed in the very decades that Japan made a unique effort to reaffirm political and strategic independence by modernizing the Japanese weapons systems and their industrial and human bases. In a sense, therefore, the modern Far East has never been without some kind of a potential great power of local origin—first, China; then as China fell, Japan; then after the fall of militarist Japan, China once more, this time under Communist control. The Japanese defeated the Russians in 1905, the Japanese defeated the Americans in 1942, and then (in Chinese eyes) the Chinese defeated the Americans in 1950–53. The Far East has always had some kind of local military power in operational existence.

Middle East since World War I

No close parallel exists to this situation in the Middle East, even though Turkey and Persia alternated as centers of power for the Middle East in the centuries following the European Renaissance. The collapse of the Ottoman Empire and the appearance of the Arab states marked the very real end of an era. At the most, the Middle Eastern states might have exercised a feeble degree of influence on local strategy in the years between World War I and World War II. Their influence was never more than feeble and in no sense decisive on the world scene. When Rommel and Alexander fought historical battles which settled the fate of North Africa the Egyptians were scarcely more than bystanders, despite the notable assistance which many of them as individuals offered to the British Eighth Army.

The unfortunate attempt of Rashid Ali al-Gailani to bring Iraq into World War II on the side of the Axis provided only a limited and inconclusive test of the limits to which an air perimeter could be pushed.

It will be remembered that Hitler's Reich tried to support the anti-British Iraqi through Vichyite Syria, but that the German air lanes were too thin and the British sea lanes through the Persian Gulf too heavy to permit German air to do more than delay the inevitable victory of British surface forces.

Perhaps Hitler made a basic miscalculation by not regarding the Middle East as a double fulcrum for his global strategy. He might have tipped the balance of petroleum supplies in his own favor by attacking and conquering the Middle East down to Palestine and over to the Persian Gulf; the same physical terrain which would have given him almost unlimited oil supplies would at the same time have completed his encirclement of the European territories of the USSR. Both logistically and geographically, he lost a great deal by holding back from the Middle East and attacking Russia instead.

Even in the years that were crucial for Germany the leaders of Turkey, the Arab states, and Iran were unable to bargain effectively with the contestants in World War II precisely because these states did not have the strategic independence, measured by the possession of massive weapons of their own, with which to bargain. Their part of the world was held too closely in the Allied grip to give these leaders anything more than a nuisance value.

PRESENT-DAY STRATEGIC CONSIDERATIONS

A sharp distinction must be made between strategic considerations which apply entirely within the Middle East and those which apply to the Middle East from the world outside.

Within the Middle East all other political considerations are subordinated to the unfinished (and perhaps unfinishable) war between the Arab states and Israel. This unfortunate political and military phenomenon has been frozen by a United Nations armistice arrangement, leading to a condition of neither war nor peace.

On Israel's side considerations of defense are, of course, paramount. The territory of the new state is not well designed for maximum strategic security. An adjustment of frontiers reducing the size of Israel would not be one which would appeal to the Israeli people or their leaders, while an extension of Israel's present frontiers would be certain to cause further difficulties with the Arabs.

On the side of the Arab states, there is a profound and often inarticulate resolution to do incompatible things. From a serious Arab point of view Israel is the latest of many European invasions of Asia. The Arabs have weathered other invasions in the past. Given time, they can weather this one. Such an approach causes them to take the "long view" of the situation and actually induces a considerable moderateness of behavior. Unfortunately a contrary view also applies which can be summarized in this way: The existence of Israel is an outrage to the Arab world; the Palestinian Arab refugees call for vengeance or for justice (depending on which Arab is speaking).

The minimum Arab program is a military assault against Jewish injustices and invasion, but there is an enormous difference between an assault which should take place next year and one which might just as well be planned for A.D. 2455.

All three of the local strategies just mentioned have their corollaries in air-power requisites.

Israeli air power

The Israeli position requires a peculiar and interesting adaptation of the air strategy of the small power—an adaptation reminiscent of Chiang Kai-shek's dominating the air space over continental China in 1930 with about 135 planes, precisely because his antagonists did not have more than one to five planes apiece and therefore did not dare fly opposing aircraft at all. As long as the Arab states have small or inadequate air forces it is only necessary for Israel to remain one step ahead of them, whatever that step may be, in order to retain air superiority and with it an effective prevention against heavy surprise land attack and a corresponding potential of interference with an open land attack.[3]

Arab attitudes

An Arab strategy of the "long view" would involve substantial Arab postponement of the economic and financial burdens of supporting air power until the coming of an Arab version of *der Tag.* To a Sun Tzŭ or a Machiavelli it might seem wise for the Arabs to do nothing until a few generations or centuries have passed—on the assumption that as the destiny of all mankind changes the Arabs are sooner or later bound to find themselves once again in a very favorable political and strategic position.

Unfortunately, ordinary human beings are rarely constituted with the classic kind of patience so often attributed to the Vatican or to the Forbidden City in Peking. Though Arab leaders may be confident of an ultimate victory, most of them cannot forego the demands of honor, conscience, or opportunity requiring a present struggle.

Irregular or guerrilla warfare against Israel has been forestalled by the exchange of bestialities between the Israeli and the Arabs, each of whom profited by the use of terror and atrocity against the British and dropped such measures against each other only when they were met in kind.

Arab air-power potential

The worst unbalance between the Arabs and the Israeli today lies in the matter of air power, both actual and short-run potential. Immediate struggle on the part of the Arab states means that the Arab states with all their handicaps must develop their own power in the air. The first requirement for any kind of air power is ground personnel capable of maintaining the aircraft and the required ground installations. If civil aviation is any criterion, the Arab states have already made a beginning. The next requirement is participation in the expensive and nerve-racking competition of air readiness: the purchase and maintenance of more and better aircraft than those possessed by one's potential antagonists.[4] In this respect the Arab states are faced by a lamentable anomaly. Those states which through their possession of oil and the resulting bonanza from oil royalties can most afford to expend the surplus capital required for a modern air force are precisely those which have the fewest modern Arabs ready to go into service as mechanics, electronic engineers, airfield service crews, and pilots. The Arab states which are already modern to a high degree—Egypt, Lebanon, Syria—do not have the surplus income necessary to support air forces superior to those of Israel.[5]

---

[3] In any Arab-Israeli conflict the Arabs would be fighting along relatively long lines of communication for two-thirds of the distance around Israel; their lines to modern urban supply zones, seaports, and repair shops would be short only to the north in the direction of Damascus and Beirut While sharp, short Arab raids could not be prevented by Israeli aircraft, anything in the way of a real Arab invasion could be hampered, if not interdicted, by Israeli possession of somewhat more modern and somewhat more numerous aircraft—providing, of course, Israeli land forces remained efficient and modern to make up for their shortages of number and breadth of defensive perimeter.

[4] When allowing for Arab weaknesses the Americans should not tip the scale too far. The ancestral memories of Americans include Old Testament images as well as novels of the Romantic period which make of the Near East a panorama of caravans, nomads, horsemen, and camels. The extensive motorization of a great deal of the everyday life of the Middle Eastern states is already an accomplished reality. Much of this could be transformed into motorized military power, providing the Arabs at least one of the ingredients of mobility necessary to offset Israeli superiority in the air.

Furthermore, it would be difficult for the Arabs to know at what point they had really outstripped Israel. An armaments race in jet fighter-bombers can become inordinately expensive. Arab use of "an ocean of men" tactics such as those developed by the strategists of the "Chinese People's Volunteer Forces" in the recent Korean War would offset part of a putative Arab inferiority in aircraft, but the humanitarianism of Islam might flinch at the sacrifice of one's own soldiers which the brutal Russian and Chinese Marxist dictatorships have been able to accomplish.

The outside world

Finally, it must be said that the internal strategy of the Middle East is virtually a playroom in an adult world. None of the Middle Eastern states possesses atomic armaments or the faintest immediate prospect of acquiring them. No local strategy makes sense unless it is based on the premise that the great atomic powers in the outside world would actually permit the local powers to fight the Palestinian issue to a conclusive finish.

Without a capacity to retain the advantages secured by war neither Israeli nor Arabs would be wise in undertaking one. While it is obvious that the Western powers would not permit intervention by Soviet military forces in the area, it is not at all obvious that the Soviet Union would obstruct the Anglo-Franco-American use of UN machinery to prevent either the expansion or the extirpation of Israel. Neither the North Atlantic Treaty Organization powers nor the Soviet bloc have anything to gain by tolerating a purely local war in Palestine. Although the United Nations possesses no military forces of its own, it has at its indirect command a degree of military force which, so far as the Middle Eastern area is concerned, can be considered overwhelming. Opportunity for a conclusive decision for either side in the Palestine situation can be found only in a deadlock between the NATO and Soviet groups more complete than any deadlock thus far seen.

OUTSIDE STRATEGIES AND THE MIDDLE EAST

Anyone who has traveled recently in the Middle East will be impressed by the comforting reassurance that Middle Eastern air space still lies comfortably within the strategic territory of free world air power.

From Abadan and Dhahran in the east to Addis Ababa in the south, from Cairo in the southwest to Istanbul in the northwest, the area is traversed by military and civilian air lanes which provide an undisputed demonstration of existing corridors of Western civil and military air power. For the greater part the commercial aircraft are American or European in ownership and almost without exception they are American in origin. Military Air Transport Service planes are as common a sight in the Middle East as they are in many parts of the United States. (Local disturbances can at any time shut down any of these airports, but it is improbable that simultaneous local disturbances could close down all of them at one time.) For the time at least the Western world is predominant in Middle Eastern air.

What use can the West make of Middle Eastern air? Three basic points can be observed:

---

[5] An organic union of all the Arab states or, at the least, an organic union of Saudi Arabia and Egypt would of course remedy this situation Short of an organic union even a close and dependable alliance might turn the trick. There are rumors of close cooperation between Saudi Arabia and Egypt, but nothing substantial enough to affect the Middle Eastern balance of power has as yet been forthcoming.

Oil

Foremost, Western air power in the Middle East can deny to the Soviet world the opportunity for a land grab which would tip the world balance of petroleum resources, both actual and reserve, in favor of the USSR. It is possible at any time for the Soviet forces to start a war in this area; it is virtually certain that such an enterprise would meet with strong initial success; equally is it certain that a Soviet attack would gain the USSR nothing worth having as long as the West possesses deployable strategic bombers and the atomic weapons to destroy anything of value which the Soviets might obtain. No one has yet claimed to have invented the unbombable oil well or the invisible petroleum refinery.

It is especially noteworthy that this degree of security has been obtained without the elaborate machinery of a zonal defensive pact similar to the North Atlantic Treaty or the Southeast Asia Collective Defense Treaty. Turkey is of course a member of NATO and the Turkish-Iraqi alliance pledges Iraq to support Turkey, while the covenant of the Arab League pledges each of the Arab states to support Iraq. It can be said that in this manner the NATO-Turkish-Iraqi chain of agreements indirectly and illegitimately attaches the Arab League to NATO. This is as much as can be said, since neutralism and standoffishness are still conspicuous threads in the pattern of Arab policy.

Keeping the peace

Second, the threat of Western air power serves to keep the peace. Sustained petty wars of the ancient Bedouin pattern are almost unthinkable. The Italians in Somaliland, the Ethiopians with their American and British pilots, the new parliamentary government of the Sudan, the Saudi authorities, the young kingdom of Libya—any of these could inflict severe punishment on a marauding tribe with the use of a very small number of aircraft. If aircraft are supplemented by airborne forces this potential becomes greater, since the wells and fields of the marauders' home oases lie at the mercy of the ruler modern enough to possess aircraft. Behind the tactical power of the small local air forces there stands the immense reserve of the strategic air forces of the Western nations. The combination is such that serious war will occur in the Middle East only if it is permitted to occur.

USSR and Western air power

Third, the entire security of the Middle East depends upon the Soviet Union's not feeling free to cancel and overcome the air advantage at present enjoyed by the Western powers in the Middle East.

Upon what, in Soviet eyes, does Western air power in the Middle East depend?

"Massive retaliation" may be found to offer its best exemplar in this area. Soviet aircraft are incapable of driving Western aircraft from the Middle Eastern skies while at the same time protecting the Soviet Union against effective Western retaliation. The land routes to the Middle East are blocked by a vigorously anti-Communist Turkey in the West and by the inhospitable terrain of Iran in the East. The Middle East or any part of it will become another Korea or Vietnam only if Western statesmen give the leaders in Moscow and Peiping reason to believe that the West will put up with local victories or will endure local defeats without serious danger of reprisal.

AIR POWER AND PSYCHOLOGICAL WARFARE

The Turks do not need to be told that the Russians are their enemies. The Turks have endured a great deal at the hands of the old Russian Empire. They stood against the combined threat of Nazi-Soviet imperialism during the dark years, 1939–1941. They are not apt to yield to bluster now. The Turks have the additional advantage of being closely allied to large numbers of people in the Soviet Union and Sinkiang. They have constantly replenished factual reasons for mistrusting the purposes and the behavior of the Russians.

Except for Israel in Asia, which is Hebrew, and Ethiopia in Africa, which is Christian, the states of the Middle East are Muslim. The religious tenor of Islam is not sympathetic to the militant atheism of the materialist dialectic. The Muslims have some connection with their coreligionists in the USSR and on the Communist-controlled mainland of China. This works both ways. The Marxist states export some of their doctrine, especially that of the popular-front variety, with a sugar-coating of pious but fraudulent Islam, but at the same time the Muslim world has its own peepholes into the human suffering and religious sterility of the Iron Curtain world.[6] The piety of the Muslim world runs counter to the materialism of Soviet appeals, but at the same time recollections which the Arab world has of recent French and British colonialism are such as to make Western talk about liberty, independence, and progress a little thin.

The most vehement opinions entertained within the area are those pertaining to local problems. The West appears important only because of its recent colonialism and its alleged potential of an imperialist ***revanche***. The Soviet menace is conceded by a few very farsighted people, but to most ordinary men it is almost on a par with the strategic threat which might some day be posed to humanity by aggressive inhabitants of the planet Mars. The strategic appeal of the West concerns far more practical matters. In co-operation with the Western world the Middle Eastern states can make themselves substantially rich.

Psychological climate of Middle East

One young American remarked to the present writer, during the course of a motor tour of Damascus:

> Syria and Lebanon had no more business being made French mandates after World War I than did Croatia or Serbia. These countries aren't behind the Balkans. They are just as modern as a lot of Europe and to my way of thinking they're much more pleasant to live in.

The psychological climate of this part of West Asia is very different from the real gloom and real tragedy surrounding much of South Asia, Southeast Asia, and East Asia. West Asia is entirely capable of modernization. The oil resources are capable of bringing in immense quantities of foreign currency. There is virtually no overpopulation in relation to the land, which is potentially irrigable—at least no overpopulation by Indian or Chinese standards. The problems of the area are real ones, but they are almost all of them soluble and there is every reason to believe that within the Western economic and political system the Middle Eastern states can offer an increasingly good life to their citizens in this lifetime, without waiting for another world or for future generations. The Middle Eastern states themselves show much of this buoyancy about their future. Soviet psychological warfare is not apt to make serious advances unless tactical blunders on the part of the West cause a recrudescence of anticolonial feeling or unless economic shocks cause severe local depressions.

---

[6] The present observer has been impressed by the fact that Islam is far more vital in the Arab states than any religion has been in China. China's vulnerability to Communism can be found at least in part in the enervated atheism which characterized a broad majority of the Chinese people before 1949. The Arab world is far more like the West in possessing a religion which, though shocked by the intellectual and physical challenges of modernity, is still a vital force. Few Chinese or Vietnamese ever refer as seriously to religion as do the present-day Muslims of West Asia. It would be easy to make too much of this factor, since it can be pointed out that the Russians were before 1917 the most religious of all the great peoples of Europe.

The "when and if" of Soviet attack does not seem to lie in the short-range future. It may lie ten years ahead, perhaps more. Given effective Western cooperation, given the reappearance of Japan as a power in the world of air strategy, given the readiness of the American taxpayer to outbid the Soviet citizen in the purchase of that margin of aircraft needed for the reasonable safety of the free world, the Soviet world may never have enough aircraft to protect its home territories, attack Europe and the New World, and at the same time swarm into Persian, Arabian, and Turkish skies.

ROLE OF U. S.

A Spengler or a Toynbee might properly insist that there is nothing new under the sun, that every strategy is a repetition of similar strategy in the past. In the Middle East it is easy to believe this. The colonial rivalry of Germany, France, and Britain has led to the political disappearance of all three as effective military land powers in the Middle Eastern world. The Middle Eastern countries no longer provide the underpinning of an Ottoman Empire or the potential booty of European colonialism. The Middle Eastern states today play a role much more reminiscent of that of the minor Greek city-states in the latter part of the Peloponnesian War.

In order to avoid becoming the slaves of Sparta or of Athens the minor city-states had the choice of affiliating themselves with either against the other, of hoping that neutrality and innocence would shield them from the nakedness of power, of dreaming about creating third-force combinations big enough to resist destruction by the Peloponnesian War, or of changing sides rapidly enough to stay on the side of the victor.

In the realistic politics of the present, neither side enjoys a decisive advantage in strategic appeals. Russia is nearer in geographic distance, but farther away in strategic distance. The emigration of Syrians and Lebanese to the United States has provided close connections between America and the Levant. These connections have been further amplified by the recent expansion of the oil companies into the Arabian peninsula. The long-standing educational activities of the American colleges in the Eastern Mediterranean have yielded a great harvest of good will and sympathy between the United States and the Arab world.

The Russians have the strategic appeal of the old battle cries of anticolonialism and anti-imperialism. The Americans and their Western allies suffer from the obloquy they inherit from colonialism and they will find that their obligations to ensure that no Middle Eastern state sinks into absolutism, terror, or corruption so abysmal as to invite Communism will present them over and over again with the two-edged problem which they have already met in Nanking, Seoul, and Hanoi. If the Western powers undertake corrective action in an insufferably depressed or oppressed area they will be challenged as intruders or meddlers; if they do not intervene to take corrective action against the worst manifestations of reaction or corruption, they will be proclaimed the allies of decay, poverty, and corruption. Policy makers in the West will have difficult decisions to make. The best way of forestalling future difficulties is perhaps to develop the greatest possible degree of candor and friendship with each of the Middle Eastern states.

America and Russia both suffer in Arab eyes from their hasty recognition of Israel and in Israeli eyes for the uncertainty of their support of the new state.

PROBABILITIES AND PROVISOS

What appears probable is that air power in the Middle East can hold its present status for years or decades, provided:

That the Western World remains economically viable enough to prevent catastrophic local depressions in the Middle East;

That the Western world suffers no overwhelming diplomatic or military defeats in other parts of the planet;

That the Western world adopts corrective action if any one of the Middle Eastern states begins to disintegrate into Communism or to fall under the sway of a pro-Moscow government;

That the Indian and neutralist world is unable to structure its leadership so sharply and so effectively as to present a workable "third bloc" of sovereign powers as a reality in world strategy.

Final decision in the Middle East, as elsewhere, must await the outcome of the contest between the two great poles of present-day human political aspiration. In the weapons field, and no less in the psychological field, there are endless advantages open to the Soviet bloc or to the free world through the use of creative imagination, new design, bold and intelligent application of novel methods to unparalleled strategic situations.

Until a happy future, somewhere beyond tomorrow, in which the Middle East once again exercises that power which the talent of its inhabitants and the richness of its territory have so often produced, it must be said that Middle Eastern air strategy will remain dominated or resolved by forces operating from the outside.

Paul M. A. Linebarger, Ph.D., Washington, D. C., is professor of Asiatic politics at the School of Advanced International Studies of the Johns Hopkins University in Washington, D. C., and visiting professor, Foreign Policy Research Institute, University of Pennsylvania. He visited the Middle East in 1922, 1945, 1950, and 1952, and made two field trips to Syria, Lebanon, Jordan, Egypt, Turkey, and Greece in 1954. His most recent books are (in collaboration with Chu Djang and Ardath W. Burks) Far Eastern Governments and Politics (1954) and Psychological Warfare (revised ed.; 1955).

Strategic Concepts for the Nuclear Age

By T. F. WALKOWICZ

THE world is entering an era of great danger. The United States and the Soviet Union will soon possess the capability to wound each other disastrously. Although the United States is currently ahead in some respects, both sides will possess this capability to an increasing degree, regardless of practicable defensive measures taken by either side to deflect and blunt a potential attack. This central fact has been known in general terms by responsible officials for some years. However, the enormous complexities of growing United States and USSR air-atomic power, obscured by limited intelligence on Soviet capabilities and intentions and compounded severalfold by sweeping technological advances in weapons and delivery systems, have made analysis of this problem most difficult.

Several factors of major importance can be perceived: Soviet *strategic* nuclear sufficiency, United States *military* nuclear sufficiency, and technological changes in air power. These factors, together with economic considerations, point clearly to the need for continuous reassessment of air strategy as the world moves into the nuclear age.

With the passage of time (and thus with a growing, frightful strategic nuclear bombing capability on both sides), it will become increasingly difficult for a President of the United States to give the order to initiate strategic bombing, if the enemy has *not yet* bombed our cities. Yet, we are too prone to take it for granted that the enemy will solve the problem for us, that is, start immediately by bombing our cities.

The nuclear armament race is dynamic, and we can only dimly perceive the future. Thus, national survival demands a flexible air strategy to meet changing conditions. United States Air Force strategy already leans toward destruction of Soviet forces in being in the event of war; for example, Strategic Air Command's first priority mission is now elimination of its Red counterpart. However, there is an apparent tendency to think too largely in terms of all-out nuclear war and destruction of the Soviet economy or "will to resist." There is needed an objective analysis of (and development of military means for) the possibility of reacting decisively but *with discrimination* in the event of future local wars, without undue risk of all-out war or mutual city-industry bombing.

SOVIET STRATEGIC NUCLEAR SUFFICIENCY

The USSR is now or will soon be militarily capable of delivering a heavy atomic attack on the United States which could cause billions of dollars worth of damage, result in the loss of millions of American lives, and destroy or seriously diminish the ability of the United States to support a major war effort. Against this threat, our active air defenses today possess a total "kill" probability of about 30 per cent, that is, about 70 per cent of attacking Soviet bombers would get through our defenses. Projected increases in defensive strength will lower the number of Soviet bombers getting through to 50 per cent or more in the next few years.

Such kill probabilities, when applied against reliable estimates of the Soviet atomic bomb production, do not indicate any decrease in the number of bombs theoretically arriving on United States targets. Even the present estimated

Soviet stockpile, if accurately placed on United States targets, would be a catastrophic blow. The USAF "Sunday punch," the principal ingredient of a countereconomy air strategy, has so far been an effective deterrent to *major* acts of aggression on the part of the Soviets. Now, however, the Soviets are approaching a position of symmetry with this vitally important SAC capability. For the Soviets, this will be a period of strategic nuclear sufficiency.

U. S. MILITARY NUCLEAR SUFFICIENCY

The United States stockpile of fissile material is growing rapidly. Furthermore, important advances in bomb technology are being made. Simultaneously, the actual cost of employing nuclear weapons against military forces and strategic targets is decreasing rapidly in comparison with that of other means of destruction. Thus—as the result of large-scale production of fissile material, technological improvements in atomic weapons, and the trend indicating continued reduction in costs of fissile material—an era of United States nuclear *plenty,* that is, *military* sufficiency, is rapidly approaching.

True, we must not become complacent about the adequacy of United States fissile material production and supply. The amount of fissile material needed to carry out a countereconomy mission is finite and relatively small. By contrast, the various counterforce and air defense missions require that fissile material be used much like ammunition; therefore, large amounts must be produced to ensure that enough is available at the right time in the right place.

However, we do now have nuclear weapons to employ against military forces; furthermore, this situation is improving steadily with time, and we can and must stay ahead of the Soviets in this regard. Therefore, our military strategy can be based on a nuclear capability adequate for *all offensive* tasks, and also for *critical* defensive operations.

TECHNOLOGICAL CHANGES IN AIR POWER

The qualitative and quantitative nature of the required air delivery capability, and its cost, are constantly being modified by technological changes in air power. The advent of jet aircraft and near-sonic combat speeds has worked to increase appreciably the size and cost of military aircraft. The attempt to achieve intercontinental range and reasonable independence of air bases on foreign soil has further accented this growth. Simultaneously, however, various techniques of range extension—some still in the early stages of development—are increasing the number of aircraft, with a wide range of sizes and performance, which will be able to contribute to the long-range bombing job. Other nuclear weapons will further increase the capabilities of this added number of potential weapon carriers. The day will soon arrive when *all our combat aircraft, including high-performance fighter types, will become bomber strike aircraft possessing devastating firepower.*

Similarly spectacular changes are in prospect in the field of air logistics. It is now possible to plan for factory-to-advance-base delivery of supplies, using aircraft operating over ranges of 3,500 miles at speeds between 300 and 400 knots. These aircraft will be able to operate, from present-day airfields, at direct costs of three to four cents per ton-mile. The flexibility of air transport, in turn, will greatly accelerate and facilitate changes in the present logistics system (methods of ordering, packaging, inventory keeping, and so forth), thus acting as a catalyst in reducing the tremendous cost inherent in the long, surface supply "pipeline" situation. The entire cost of an air logistics system appears to be appreciably less than the savings in spare parts made possible by it. This future air logistics capability will greatly enhance the operational flexibility of air power, since the same aircraft can also serve as in-flight refueling tankers.

Range-extended tactical combat aircraft, supported by a world-wide air logistics system, make operationally possible and economically feasible the rapid deployment of *task forces* to fight "brush fires" or "limited wars" anywhere on the Soviet perimeter. These *task forces* need depend only on minimum overseas stockpiling (largely fuel and lubricants stored underground) and on overseas bases maintained on "austerity-tenant" standards.

Thus, air power is in the sweep of a technical revolution which will profoundly influence the character of its aircraft, greatly increase its operational flexibility and striking power, and keep its over-all costs within reasonable margins.

ECONOMIC CONSIDERATIONS

The challenge of Communism, coupled with the neutralization by air power of our historic ocean barriers, has placed unprecedented strains upon the American economy. We face the prospect of maintaining armed forces in being of great magnitude and expense, for an indefinite period of time. The unexpectedly early Soviet atomic explosion in 1949, followed by the Korean episode in 1950, brought a then existing military economy drive to an abrupt halt and greatly accelerated a laggard United States rearmament program. Soon thereafter, the inevitable inefficiency of hastily conceived military programs and the waste inherent in their rapid implementation became apparent, and led to great emphasis on improving the efficiency of our national defense effort and balancing the budget.

In the Soviet Union, a police-state system is used to suppress consumer demand below normal levels. For this reason, the USSR presumably can continue military spending at a relatively high level for an indefinite period of time. Here in the United States it appears that tax rates cannot be safely raised nor deficit financing indefinitely continued without seriously impinging on the traditional American way of life. The resulting pressures to reduce the cost of the defense establishment are enormous, and the new administration has moved strongly to cut the costs of previous military force programs.

FORCES IN BEING VS. POST-D-DAY MOBILIZATION

The key factor in winning World Wars I and II was the United States mobilization base. Therefore, it is difficult to discard this concept in planning for victory in the third world war.

Yet, the outcome of a war in the nuclear age will almost surely be decided by forces in being rather than through post-D-day mobilization. The tremendous destructive power of nuclear weapons now makes it possible for *one airplane* to deliver in *a single instant* many times the explosive equivalent of the entire bombing effort of the Allied Air Forces in World War II.

Considerably fewer than a thousand nuclear weapons could render the Soviet economy impotent, and probably even fewer than that would do the same to the economy of the United States. The large-scale use of atomic weapons in countermilitary operations (two to three thousand) could reduce armies, air forces, navies, and their supporting logistic systems to relative insignificance.

Therefore, in a nuclear war, the combat potential of both sides may decline rapidly following D day, and the size of the mobilization base becomes practically irrelevant. The decisive phase of the war may have been fought almost before weapons still in factories on D day can be brought to bear on the enemy.

True, we dare not gamble that the first few months of any future war will be decisive. Thus, while concentrating on the war readiness of our forces in being, we must also place adequate emphasis on duplicating certain vital parts of the industrial mobilization base, and on dispersal of both industry and people. However, this is far different from the thinking reflected in the Vance Committee Report according to which the interests of the nation would be best served by substituting, to the greatest extent practicable, additional production facilities for stockpiles of military "end items."[1] Such thinking is not only obsolete, but extremely dangerous to the survival of the United States.

PRODUCING THE FORCES IN BEING FOR MINIMUM COST

Abandonment of the mobilization-base concept as the primary war-winning factor is an important first step toward minimizing the cost of a force in being. The present mobilization-base concept involves not only the building up of excessive productive capacity, but also the additional expense of using this capacity on a one-shift or less basis, that is, "maintaining living and breathing production lines."

Maximum emphasis must be placed on larger production runs and lower production costs in fewer producing units (that is, uneconomic spreading of orders must be avoided). However, the larger production runs must not be achieved wholly through reduced emphasis on development during production, but also in part through a reduction in the number of types of aircraft and equipment produced. Similarly, the stockpiling of selected, long lead-time, multipurpose machine tools is of great importance for the specific purpose of reducing development-to-production lead times.

MINIMIZING VULNERABILITY OF THE U. S. ECONOMY AND AIR POWER

At present, the over-all vulnerability of the United States to atomic attack presumably is greater than that of the USSR. The capacity of almost all of our important war and war-connected industries is two to three times larger than that of the Soviet Union. On the other hand, this bigger economic base is concentrated in fewer cities. Similarly, the offensive components of the Air Force, strategic and tactical, are extremely vulnerable to Soviet nuclear attack. Drastic measures must be taken for their protection, or the effects of the first Soviet strike on our capability to deliver nuclear weapons could be catastrophic.

The tactical air force and any SAC wings deployed in the European theater can be expected to suffer heavy damage in the initial enemy strike so long as they remain concentrated on relatively few airfields. Even SAC wings based in the United States are vulnerable. The concentration of practically all of our SAC force on a relatively few airfields in this country (while Congress drastically slashes air-base construction funds) increases their vulnerability and reduces the deterrent effect of United States offensive air power.

The physical vulnerability of the United States economy and its urban population can be slowly reduced through long-term dispersal programs, and national, state, and local governments should develop master plans for the decentralized location of ***new*** urban and industrial construction arising from the demands of a growing United States economy. In this regard, the United States enjoys a marked advantage over the Soviets through possession of a superior communications network which makes long-term decentralization of ***new construction*** a practical plan.

---

[1] "Production Capacity—A Military Reserve," a Report to the Director of Defense Mobilization by the Advisory Committee on Production Equipment, January 1953.

Our economy and the United States people must be provided with an air defense system which would exact a heavy toll on the enemy, even though loss of life and property will be magnified manyfold by World War II standards, in the event of a Soviet attack. In view of this, we must now take urgent measures to minimize loss of life in the event of Soviet attack by providing an adequate warning system and by implementing a program of evacuating all major cities at the initiation of hostilities. Furthermore, the present emphasis on air defense must be maintained and increased as the situation requires.

Simultaneously, reliable intelligence on Soviet air-atomic strength must become the prime determinant in setting a proper balance between present United States offensive and defensive air power. This balance between air offensive and air defensive strength is the cold-blooded business of our survival. The situation profits little from reckless charges of disinterest in air defense hurled against military officials who have been fighting for years for resources to do the job adequately. Rather, the science-industry-military team must continue to work effectively together to construct a defensive system which leaves no margin for Soviet miscalculation as to our ability to survive and strike back, if attacked. In addition, many measures suggest themselves for minimizing the vulnerability of United States air power to Soviet attack.

U. S. vs. USSR IN A COUNTERECONOMY WAR

A future war, with unrestricted use of nuclear weapons in countereconomy strategic bombing campaigns, can end only in destruction of both sides. It would be folly to assume that symmetry in countereconomy bombing will not exist during the nuclear age, when the number of bombs required on target can be measured in hundreds. It is of little consequence that we have the nuclear stockpile capability of destroying Russia several times, if Russia simultaneously has the capability to destroy us just once. This she can have with a reasonable investment—an investment she is obviously making. Even worse, the countereconomy situation will become highly asymmetrical in favor of the Soviets (even when they still have a "limited" number of bombs and bombers) because they are subject to fewer political constraints in starting a war. Furthermore, should the Soviets develop a ballistic-missile-delivery capability before we do, countereconomy deterrent strength could shift heavily in their favor.

An exchange of blows resulting in millions of dead and devastation of a large portion of our industrial and urban complex would endanger our national objective of preserving democratic concepts and institutions. This basic inconsistency between national objectives and unrestrained countereconomy warfare under conditions of United States–Soviet Union *strategic nuclear symmetry* demands that we explore objectively any alternative war-winning strategies which minimize the prospects of an automatic exchange of countereconomy nuclear attacks.

There are two very good reasons why we should concern ourselves with broader air strategy than that based too rigidly on the decisiveness of the countereconomy campaign. First, with symmetrical United States–Soviet Union countereconomy capabilities, the "Sunday punch" is not likely to be decisive. Secondly, we should not rule out the possibility of a political decision staying the delivery of the "Sunday punch." Facing up to these possibilities, we must exploit fully all elements of air-atomic power to prevent even greater emphasis on the conventional ground orientation of our strategy. For the nation, this is a *must,* because we will lose any future war unless we counter Soviet superiority on the ground, and the only effective and economic way proposed for doing this so far is through air-atomic power.

Suggestions for employing air power in other than the classical strategic role have not always been seriously considered since World War II, and too often have been lightly turned aside by the cliché: "Oh, you want to return the battle to the battlefields." During the period of United States atomic monopoly many in the Air Force considered it rank heresy—and correctly so—to have the slightest doubt cast upon the validity of the classical tenets of Douhet and Mitchell. Therefore, it is small wonder that the dynamics of the nuclear age and the significance of the passing of our atomic monopoly have not been fully appreciated, and that old concepts of air power continue to be rigidly embraced. Much broader horizons are now open to United States air-atomic power, and through their exploitation the devastation of countereconomy nuclear war can, we may hope, be avoided.

NEED FOR MAINTAINING COUNTERECONOMY CAPABILITY

There can be no guarantee that the USSR will not attack the United States economy first. They will undoubtedly have the initiative, and it would be sheer folly to rely on any agreement with the Russians to refrain from bombing cities. Hence, there will be an overriding need for a United States strategic force with such unquestionable capability that the Soviets will have no room to speculate about the outcome of launching a surprise attack against the United States economy. This requires that we maintain a strategic force relatively invulnerable to enemy offensive or defensive air power. It also requires that we exploit fully alternative delivery capabilities for striking the Soviet economy.

The Soviets must never be tempted to strike SAC and the United States economy on the assumption that SAC is highly vulnerable and that if SAC is destroyed our total capability to retaliate will have been eliminated. In other words, SAC, Tactical Air Command, or in fact *all* offensive United States air power can and should be flexible enough to do a variety of jobs, including countereconomy strategic bombing. This is the only effective and practical way of standing down SUSAC, the Russian counterpart of our Strategic Air Command.

But what would happen if an attack on Western Europe should lead to a mutual countereconomy war which, however, would forestall a Soviet seizure of large territories? If Western Europe were occupied and its political and intellectual leadership purged by the Soviets, we would then be faced with the necessity of "liberating" and "governing" it in the World War II sense of the word. Clearly, this would be impossible in the event that countereconomy blows have been exchanged, since there would be no healthy American economy and some millions fewer people in the United States to use in mounting a new expeditionary force. Furthermore, in the face of an enemy atomic capability, Normandy-type invasions are doomed to failure. Thus, although the United States would not necessarily have "lost" the war, we would be in no position to win it militarily. And with Western Europe lost to us, the long-term political and economic factors would strongly favor the Soviets.

These possibilities point up the indecisive nature of a countereconomy campaign against the Soviets, when they can do the same to us. Furthermore, there is always some risk that, faced with devastation in the event of a nuclear war, the Soviet leadership may prefer the risk of national suicide if countereconomy bombing were to leave *both* sides with their economies destroyed but the Soviets in control of Western Europe—a better prospect for the elite than certain defeat.

POLITICAL IMPLICATIONS OF SOVIET NUCLEAR SUFFICIENCY

As the Soviets achieve *strategic* nuclear sufficiency, their large ground armies and tactical air forces could, in a conventional military sense—unless we counter them effectively—shift the world balance of power in favor of the Soviets. With devastating punishment aimed at the United States and North Atlantic Treaty Organization countries, the Soviets could be in a strong bargaining position to press for agreement to refrain from employing nuclear weapons. Furthermore, having the initiative, the Soviets might refrain from using nuclear weapons and simultaneously announce that city bombing would be resorted to only in retaliation. In the face of a known Soviet nuclear capability, it is highly unlikely that the NATO countries would, except in a dying gasp, initiate city bombing.

The possible courses of events outlined above would appear to favor the Soviets, with their large edge in conventional ground armies and tactical air forces. However, the reverse is possible if the United States takes full advantage of its large stockpile for mass employment of nuclear weapons by both tactical and strategic air forces against Soviet military forces in being and their direct supporting elements. A large and potentially decisive military advantage accrues to the United States in countermilitary force operations because of a larger nuclear stockpile; the probability of a greater variety of proven weapons and delivery systems; and a variety of proven delivery tactics and techniques. These advantages can and must be maintained for many years, and they can be militarily decisive during this period. This United States counterforce nuclear capability should enable us to overcome the Soviet advantage in numbers of conventional ground and tactical air forces.

TARGETS FOR COUNTERFORCE OPERATIONS

Combat forces, lines of communication, and supporting supplies constitute the principal targets for attack and destruction of counterforce operations. It should be clear that the use of nuclear weapons makes it difficult to distinguish between military and countereconomy targets. For example, major air bases are frequently located near cities; troops can be concentrated in cities; and submarine bases are associated with major seaports. Thus, even counterforce operations would inevitably lead to some destruction of cities. Furthermore, this situation presents especially difficult targeting problems when we contemplate using nuclear weapons against counterforce targets in Central Europe. Nevertheless, these targeting difficulties should not distract us from the basic objective of winning any war *primarily* through the destruction of enemy forces in being.

The targets of highest priority among offensive enemy combat forces are those intended for the air delivery of nuclear weapons. The facts that combat aircraft spend some 90 per cent of their time on the ground, that they require servicing by highly skilled and trained personnel, and that they require certain fixed ground facilities render air installations particularly lucrative targets to attack by nuclear weapons. Furthermore, the fixed nature of air installations permits the targeting and planning for their attack prior to the opening of hostilities.

The destruction of the enemy's air force is the essential prelude to the large-scale attack of his ground forces. The Soviets habitually employed massive attack formations in World War II. The centralization of authority and distrust of the initiative of smaller unit commanders in the dictator society of the Soviets may influence them to continue reliance, at least *initially,* on massive ground attacks. Air forces armed with enough nuclear weapons can now destroy such ground forces—quickly and completely. After—or perhaps, even before—an anti-ground-force atomic capability has been demonstrated, dispersal in both frontage and depth will be used to reduce vulnerability, but this will introduce serious problems of control and great losses in *striking power.* Hunter-killer, air-ground tactics—utilizing small, highly mobile, airborne forces—can and must be devised to force isolated enemy ground units either to remain dispersed, immobile, and ineffectual, or to concentrate and present lucrative atomic targets of opportunity.

The Soviet submarine force will undoubtedly engage heavily in interdiction of our sea lines. Their employment for closing important allied seaports with atomic torpedoes and for launching guided missiles with nuclear war heads against targets in the continental United States is also a distinct possibility.

Like aircraft, submarines are difficult to locate, combat, and destroy when operating in their own medium. Also like aircraft, submarines require elaborate home bases, spend a large fraction of their time in these bases, and require highly trained and skilled personnel for their operation and maintenance. These submarine bases are tough targets, so that the fissile material requirements per target are quite high. This is counterbalanced by the fact that these targets are relatively few in number and their destruction rapidly reduces the number of enemy submarines on patrol.

The logistics and communications systems necessary to support and give mobility to ground forces present targets of high military value. The destruction of the enemy's skilled engineer troops through timely attack of bridge sites constitutes profitable employment of tactical air-atomic capability.

There is general agreement that atomic strikes against fuel-production facilities can have little effect in blunting the initial onslaught of a Soviet attack. They can have only a relatively long-term effect. However, the larger fuel-storage sites nearer the combat zone are important targets for initial atomic attack. Munitions and supplies are so readily dispersed and camouflaged and their vulnerability is so low that their attack with atomic weapons is of doubtful profit. However, destruction and abandonment of munitions and supplies coincident with nuclear attack of troop targets are likely to be a major bonus.

AMERICAN AIR POWER REQUIREMENTS

Based on what has been said so far, it is now possible to summarize American air power requirements. First of all, America must be strong in its own right and must be able to project some of *its* retaliatory power from well-defended bases on this continent. However, granted that an intercontinental strategic capability of some magnitude is vital to this country's survival, it is no longer of itself sufficient to guarantee our long-term security. Furthermore, in the long term, air power based on America alone *can be* impaired by military and political vicissitudes in other parts of the world. After all, if we depended solely on a long-range striking air force, we would be leaving the whole Eastern Hemisphere open to eventual Soviet domination. The balance of world resources, including trained manpower, industry, and strategic materials, would then heavily favor the Soviets, and our eventual defeat would be merely a matter of time—unless we were to initiate a preventive war, which has been ruled out as a policy for the United States. Therefore, we must have *both* adequate long-range air power—with bases in the United States—to retain reasonable independence of action and to keep from being coerced economically by our allies, and adequate shorter-range air power—with bases on allied territory—to keep the Soviets from blackmailing our allies and eventually capturing a major fraction of the world's resources.

However, to be effective, NATO tactical air power must rest on secure bases. And the West European countries must provide the assurance that neither parliamentary debates (Communist members participating) nor Communist sabotage will inhibit allied tactical atomic air power at the moment the Soviets attack.

Lest these views be misunderstood, two points should be made clear: First, SAC's long-range offensive capability is vital to our survival. SAC's budget should, if anything, be increased. Second, powerful shorter-range (tactical) land- and sea-based air-atomic power, a supporting air-logistics system, and highly mobile ground units have become equally vital, and here the budgetary deficiency is even greater. The dangerous fiction that nuclear weapons drastically reduce requirements for aircraft should be dispelled, for it is the size of the enemy's air force—and not the type of bombs we shall both use—which must primarily determine the size of our air arm. Soviet combat aircraft now number appreciably more than those of the West; and our marginal and fleeting qualitative superiority (supported by an inadequate air research and development budget) is too slender a reed upon which to base the serious risk of being outnumbered in the air.

COUNTERFORCE STRATEGY

A counterforce strategy in the nuclear age stands in sharp contrast to present strategy influenced by World War II and the "age of atomic monopoly," emphasizing the United States mobilization base and the SAC countereconomy "Sunday punch"; also to the American Fortress strategy which places heavy emphasis on air defense; and to the completely unrealistic and impractical strategies based on various atomic disarmament proposals.

Of course, we should frankly recognize that the Soviets may choose *not* to fight a counterforce war. If this should be the case, nothing is lost by adopting the counterforce strategy ourselves. In the first place, SUSAC remains as the highest-priority target under both the present and the counterforce strategy. Secondly, the tactical atomic-delivery capability which we develop for counterforce purposes can also be used for strategic bombing. Furthermore, the counterforce strategy gives us clear gains in the cold war and local wars. Finally, there is always some chance that our counterforce strategy may cause the Soviets to refrain from attacking our economy massively at the outset.

Technological revolution has created a discontinuity in the normal evolution of strategy. We must attempt to establish a trend toward basic compatibility between national policies and strategic concepts, taking into account the rapidly changing nature of our military capabilities. Proper implementation of a counterforce strategy will enable us to *hold* vital areas of the free world. If we can *hold* Western Europe and other vital areas, we will rally free people to our side by removing the present fear of "liberation," *after* Soviet occupation and liquidation. The counterforce strategy offers some possibility of limiting wars, and hence a higher probability of preserving our way of life.

It clearly distinguishes between Soviet-controlled peoples and the Communist regimes. The United States professes no animosity toward Soviet-controlled peoples. Consistent with this, the counterforce strategy does not seek to win the war largely by destroying them.

The foreign policy of the United States government seeks to *reduce the capabilities* of the Soviet regime below the danger point, or to *alter its intentions* through creating situations which represent courses of action more acceptable to the Soviets and more in keeping with our objectives. This also is precisely what the counterforce strategy seeks to do in a military way—reduce Soviet capabilities (military forces and stocks) and create an acceptable alternative course of action for the Soviets (surrender on reasonable, stated terms or perish).

The counterforce strategy presents a badly needed opportunity for American leadership to associate itself with a higher purpose than the blind use of United States military might. Propagandawise, and diplomatically, this circumstance can be used to attract to American leadership moralists in this country and Europe, in still neutral Asia, and among the people behind the Iron Curtain, all of whom we have yet to attract by the quality and character of our leadership.

In the air age, United States mobile air-atomic strength can be the equivalent of nineteenth-century British naval power. It would make a kind of global Monroe Doctrine, countering Soviet military aggression against the free world, a political possibility. American troops, now stationed in forty-nine countries of the world, can be withdrawn to a major extent and stationed in this country, leaving a ring of dispersed and lightly manned standby bases around the Soviet periphery. The United States can recover from its present awkward position of overcommitment of available surface forces around the world. Local national forces in Europe and Asia can carry out their share of the containment of Soviet power, backed by the shield of United States air-atomic power, which is committed to destroy Communist-inspired forces of aggression and some of which is based in countries allied with the United States as solid evidence of our commitment.

T. F. Walkowicz, Sc D., New York City, is an aeronautical engineer on the staff of Laurance S. Rockefeller and a member of the Institute of the Aeronautical Sciences. He served as junior engineer, matériel division, Wright Field, Ohio; chief, glider flight research unit, Air Forces, U. S. Army; consultant, airborne armies, Headquarters, Washington, D. C.; technical intelligence officer, Europe and Japan (1944–45, 1947); staff officer, air command and staff school, Air University. He was executive secretary, Scientific Advisory Board, U. S. Air Force; member of the Defense Management Committee on the Research and Development Board; member of the Weapons Systems Evaluation Group; and executive to the Special Assistant (Research and Development) to the Chief of Staff, U. S. Air Force (1949–52).

Dropping the Pilot

By Donald T. Perkins

During the past ten years, there has developed the widely held belief that the future defense of our country and its institutions must be based principally upon technological advances in the field of push-button warfare. This belief has been fostered by frequent public accounts of the omniscient and omnipotent properties of guided missiles, glowing with optimism but shrouding the details in mystery and mumbo jumbo. One sees the guided missile in its offensive role as the relentless and ineluctable dealer of death and destruction; and in its defensive role as the sure savior from all who will harm us, the universal protector that encloses us in safety as with a magical cloak. (The fact that these two capabilities are mutually contradictory is frequently overlooked.) The appeal to blind faith of this sort is dangerous, and in no way justified.

From one point of view, one may regard guided missiles as an advanced form of artillery. However, when thinking in terms of air power, a more natural viewpoint (and the one adopted here) is to regard guided missiles as delivery vehicles whose primary distinguishing characteristic is the absence of a human crew. One is reminded, perhaps, of Tenniel's famous ***Punch*** cartoon on the resignation of Bismarck, "Dropping the Pilot." It is certainly pertinent to inquire whether dropping the pilot is a good thing; or, more generally, under what circumstances it may be a good thing.

Naturally, it is not intended here to argue that the only feature which sets missiles apart from piloted aircraft is the absence of the pilot. Rather, it is intended to begin with this definitive feature, and attempt to determine in a rather general sort of way what are its implications in the design and operation of weapons systems, and how these considerations fit in with the concept of air warfare in the future. Before doing this, however, it is necessary to clear away some of the semantic debris which has collected around the subject of guided missiles.

The Party Line

Almost every public utterance concerning missile systems stresses the pinpoint, all-weather capability of these systems as their chief endearing quality. Perhaps such statements are sometimes intended merely as advertising material and, as such, should not be taken too seriously. But the almost ritualistic uniformity of these contentions leaves one with the impression that pinpoint accuracy and all-weather delivery are the prime articles of faith of the missile enthusiast. Nevertheless, an examination of the real factors that have a bearing on accuracy and all-weather capability does not reveal any startling advantages which missiles have over manned vehicles in these respects.

Bombing accuracy

The only source of operational experience with missiles to which we can point is that of the German V-1 and V-2 firings during World War II. Incidentally, these missiles constitute prototypes for a broad division of missiles into two varieties which will be called here "cruise-type" and "ballistic": the cruise-type missile is characterized by the use of aerodynamic lift surfaces and dependence upon air as an oxidizer; the ballistic missile is characterized by the absence of these two properties. Of course, there are gradations in between, but it is adequate here to consider only the two extremes, as exemplified by the small, pulse-jet-powered, winged V-1 and the larger, rocket-powered, ballistic V-2. Whatever these missiles may have proved concerning the bold and ingenious character of German military development, they certainly failed to provide examples of pinpoint bombing accuracy. It was, in fact, their excessive inaccuracy which prevented them from affecting the course of the war to any great extent.

It must, of course, be recognized that the German V-1 and V-2 were extremely primitive, and more advanced techniques of guidance will yield much better accuracy. One must ask, however, whether such improved guidance techniques give missiles a comparative advantage over manned systems. Considering first cruise-type missiles, it seems fairly clear that the missile guidance problem is very nearly the same as the navigation and bombing problem of the manned system—except that certain techniques, such as visual bombing systems and pilotage, are not readily available to missiles. The crude, dead-reckoning guidance of the V-1 was forced upon this missile system by the absence of a pilot, at a time when much better guidance systems were available and in use by manned systems. Sufficient improvement of the V-1 guidance system could tend to bridge this gap, but could never serve to the comparative advantage of the missile, since such an improved inertial system would be equally available to manned systems. In other words, dropping the pilot cannot improve bombing accuracy and will probably make it worse.

The guidance problem for ballistic missiles is somewhat different, and certainly does not invite comparison with manned systems. However, it is clear that a high degree of accuracy is not easily to be achieved, and becomes progressively more difficult with increasing range.

All-weather capabilities

The all-weather capabilities of missiles likewise are open to question. Here again the ballistic missile presents different, but not necessarily trivial, problems. For example, the launching of ballistic missiles under conditions of strong and gusty surface winds appears to offer difficulties at least as serious as the take-off and landing of aircraft under the same circumstances. Freezing rain is admittedly a serious hazard to aviation—would all go well with a missile launching under these weather conditions? It is submitted that nobody really knows. In the case of cruise-type missiles, one can anticipate the same sort of difficulties with the weather elements as are experienced with manned systems. Weather minimums for landing are an obvious exception to this generality, but this is not a major problem for aircraft in wartime operations.

In general, it is apparent that the pinpoint, all-weather capabilities of missiles, as advertised, are based largely on the incapacity of these systems to derive any benefit from human contributions en route, based upon vision, interpretation, and judgment. This is perhaps an interesting negative property, but can hardly be regarded as a positive recommendation. The case for missiles must be based upon something firmer than this—and a firmer basis will be outlined in the following sections.

CHARACTERISTICS OF DESIGN

Guided missiles are distinguished from aircraft systems by the absence of crew members. This has far-reaching implications in the philosophy of design.

There are sizable savings in weight and space made possible by dispensing with the need for proper environment for the crew. Also certain safety factors can be relaxed, and the entire vehicle can be designed on a more austere basis than would be possible with human occupants. Since the missiles are planned for one-time use, the landing gear can be eliminated, and requirements for the service life of components can be relaxed. These effects are all of some significance—but a much more important advantage of unmanned offensive systems lies in the range capability inherent in the one-way mission. This makes possible the use of relatively small and inexpensive missiles as delivery vehicles at ranges that would be almost prohibitive for much larger manned systems, required to make the return trip.

In the case of defensive missiles, the comparison between manned and unmanned systems is much more complex. But here also, and for somewhat the same reasons as in the offensive case, a really major advantage of the unmanned systems emerges—namely, the clear superiority in altitude capability.

The utilization of guided missiles for one-way missions has already been mentioned, and this has another unique and important benefit—it includes the use of ballistic missiles, which is well-nigh impossible on a manned basis. The advent of ballistic missiles as long-range delivery vehicles clearly opens up a new order of in-flight invulnerability, and the effect of this will be discussed in the next section.

CHARACTERISTICS OF OPERATION

In comparing missiles with aircraft in the offensive role, one should notice first that cruise-type missile delivery is subject to approximately the same degradation from enemy action as is aircraft delivery; on the other hand, the high-speed, high-angle trajectory of the ballistic missile reduces greatly its vulnerability to active defenses. The advantage of manned aircraft is that their relatively high procurement cost can be amortized over many sorties. Under some circumstances that can easily be visualized this is an important advantage, and one that weights the scales heavily in favor of manned systems. However, there are at least two circumstances in which this advantage cannot be realized: first, when the decisive phase of the war is of very short duration; and secondly, when the active defenses are highly effective against aircraft. In the first case, missile systems will be preferable to manned systems because of their lower procurement cost; in the second case, ballistic missiles will be preferable to aircraft and cruise-type missiles because of their lower vulnerability in flight.

Human values

The circumstance of highly effective defenses has another important implication for offensive operations. It is characteristic of missile systems that they may be operated efficiently (from an economic standpoint) at loss rates in excess of 50 per cent, on the inbound flight only. Human considerations exclude the possibility of planning for this type of operation with manned systems —when excessive loss rates actually occur, the operation is drastically modified or halted. Consequently, campaign costs for manned systems against strong defenses are relatively high, because of the requirement to maintain loss rates below acceptable human standards.

It is perhaps appropriate to point out that it has been assumed here that manned systems are operated according to standards of human value prevalent in this country and other Western democracies. The effect of drastically altering these standards was illustrated by the record of the kamikazes during the last war. Most of what has been said in favor of guided missiles applies equally well to manned suicide systems, and even to less drastic manned one-way missions. Presumably this general idea will find no application by ourselves, but there is no assurance that it will not be used by an enemy.

Base vulnerability and mobility

One should not attempt to assess the over-all worth of missile systems on the basis of in-flight performance alone. Considerations of base vulnerability and mobility of tactical units are equally important. It is of course not possible to discuss these issues in detail, but some of the salient features may be noted. First, although guided missiles are comparatively light (at least in empty weight) and are launched more or less vertically, there is a strong tendency to accumulate impedimenta on the ground. Secondly, the deployment and resupply of missile units is made more difficult by the fact that the missiles themselves must be transported, rather than ferrying under their own power. Finally, it should be said that in spite of these (and other) complications, guided missiles appear to offer an excellent potential for mobile and dispersed operation. However, in order to realize this potential, it is necessary to approach the problems of base operations and logistics from a fresh standpoint, rather than attempting to fit missiles into the existing structure.

Flexibility

Another aspect of operations that deserves some attention is the potential flexibility of weapons systems. Here guided missiles stand at a distinct disadvantage. The superiority of the human mind over machines in performing many functions (such as visual recognition, evaluation of complex situations, decision based upon information derived during flight, and so forth) is well known and need not be belabored. In some applications such as tactical support operations and area defense, the inflexibility of missile systems militates strongly against their exclusive use at the expense of manned systems. In other applications such as strategic bombardment and point defense, flexibility is not at such a high premium and may allow extensive replacement of manned by unmanned systems.

Reliability

Some consideration must also be given to the reliability of missile systems. It is inherent in the general nature of these systems that high reliability is difficult to achieve, especially under the stresses of combat operations. In some instances where safety of friendly troops and populations is at issue, low reliability may be a crippling drawback; in other instances, low reliability may be regarded simply as increasing somewhat the cost of operations, and this may be entirely acceptable. In any case, it must be recognized that it is a long step from a laboratory item to an operational system. When this recognition is coupled with a requirement for maintaining air forces continuously in a state of operational readiness, it engenders a fair degree of caution in the rejection of manned aircraft systems.

FUTURE OF AIR WARFARE

The previous discussion has set forth some of the salient characteristics of guided missiles and their operations. It is now pertinent to inquire to what extent these characteristics make guided missiles suitable for the type of warfare that one can reasonably visualize in the future, especially as this warfare is affected by the impact of nuclear weapon technology. The vastly increased firepower afforded by atomic weapons has the immediate effect of giving the offense an inherent advantage over the defense. This is true because the delivery of relatively few, but powerful, weapons on appropriate targets can constitute a severe and tragic blow even to a great world power. It is not likely that this can be entirely prevented by defensive action; it cannot even be prevented by striking the first blow, if the enemy has exercised reasonable care in providing exceptional protection for his offensive striking forces. Under these circumstances, the classical concept of air superiority becomes somewhat inapplicable. The potentialities of missiles for this kind of warfare were illustrated in the last war, when the Germans launched many thousands of missiles against targets in England and on the Continent, during a period when the Allies held almost absolute air supremacy. One need only translate this into terms of nuclear weapons to gain some inkling of the unsavory character of future warfare.

In spite of the horror with which all reasonable men must view the possibility of another major war, the present world political situation dictates that we maintain a high state of military preparedness. It is inevitable that the keynote of this preparedness should be the preservation of a well-established and well-publicized capability for delivering devastation upon any potential enemy—for in this way, the initiation of general war may be deterred. The characteristics of guided missiles are such that they are well suited to this role. This is true not only from considerations of military economy, but also because of the psychological value of the threat of attack by guided missiles. It requires very little imagination to regard a missile poised on the launching site as being effectively a pistol pointed at the heart, and the psychological value of this should not be underestimated.

Manned aircraft systems

In addition to the strategic forces, defensive and tactical forces are also necessary. In order to support the national foreign policy, there must be air forces designed to engage in such forms of limited warfare and in such areas as may be dictated by the changing exigencies of world affairs. The success of military forces in such conflicts, as well as milder measures such as economic and psychological warfare, may well spell the difference between ultimate peace and ultimate total war. The high degree of mobility and flexibility required to meet this military obligation must severely restrict the application of guided missiles in this role. Likewise in air defense, a mixture of manned and unmanned systems is necessary. Within the foreseeable future then, a sizable proportion of the national air power will continue to be vested in manned aircraft systems.

CONCLUSION

Guided missile systems have been found to have several important inherent advantages over manned aircraft systems. Principal of these are the greater range capability for offensive systems, greater altitude capability for defensive systems, more economic utilization in the face of strong enemy defenses and in campaigns of short duration, and psychological superiority as a deterrent. These advantages are bought at a price of reduced accuracy at long ranges, lessened strategic mobility, general lack of flexibility, and lower reliability. It seems clear that the price paid is well justified by the advantages gained for the performance of a large portion of the air force mission. The fruition of guided missiles into operational systems will require tremendous efforts, not only in research and development but also in the introduction of new operational and logistics concepts. The transition from manned to unmanned systems will necessarily be rather gradual, but will constitute a very significant advance in air power.

Donald T. Perkins, Ph.D., Washington, D. C., is Chief of the Research and Analysis Division of the Office of the Assistant for Development Planning in Headquarters, United States Air Force. He has served as chief of the Operations Analysis Offices of the Allied Air Forces in Central Europe and the United States Air Forces in Europe, deputy director of Scientific Services for the Air Weather Service; Air Force major (Reserve) during World War II; instructor in mathematics at Harvard University; and instructor in mathematics at Yale University.

Aviation and International Co-operation

By Robert Strausz-Hupé

THE development of aviation has given rise, from its very start nearly half a century ago, to the most extravagant expectations of future achievements. The spokesmen of the new industry, who as a group were the most articulate and enthusiastic among publicists of industrial promotion, claimed nothing less than that aviation would revolutionize civilization and unify the globe. In retrospect, the apostles of aviation now appear to have been sober, if not overcautious, realists.

It is no longer possible to conceive of aviation as merely one among several means of transportation. The impact of aviation upon the entire economic, social, and political structure of civilization has shattered traditional concepts of space and time. True enough, the speed of modern surface transportation exceeds by impressive multiples preindustrial rates of locomotion. But the increase of surface speeds has been, over a period of about one hundred years, relatively gradual, and modern surface transportation still follows, except for minor deviations, trails that have been blazed by preindustrial civilizations. In the United States, for example, the average railroad passenger train attains an average speed of 39.1 miles per hour; domestic scheduled air transportation has increased its average speed to 200 miles per hour. In addition, air transportation has clipped an average of 20 per cent from rail and highway distances between major American cities. Since, in the United States, systems of surface transportation are highly efficient, the margin of time-space superiority enjoyed by air transportation is probably the smallest anywhere in the world. Internationally, that margin is much greater; in the so-called backward countries it has reached staggering proportions. Moreover, the rate of increase of air speeds steadily widens, absolutely and relatively, the gap between air and surface transportation. While, in the United States, rail speeds per hour increased between 1939 and 1953 from 37 miles to 39.1 miles (5.9 per cent), air speeds increased from 153.3 miles to 200.6 miles (30.9 per cent). If, during the first fifty years, aviation has reduced, in point of time, the globe to the area of the European continent, it is more than likely that, before the end of this century, the earth will have shrunk to the time-space dimensions of one of the larger American states.

Impressive as are these figures, they are far from reflecting fully the present potentialities of air transportation as an agent of international and cultural change. Were current air speeds and available commercial transportation facilities fully integrated into the world economy, the world would be too closely knit to accommodate isolated communities. The fact is that the potentialities of existing systems of air transportation are far from being fully exploited. Moreover, existing systems do not employ the latest, albeit fully tested, techniques that scientific research and industrial production have developed. The restrictions on the present capabilities of civilian aviation and on the expansion of these capabilities within the limits of available techniques are mainly political and military, rather than technical and economic.

DEVELOPMENT OF CIVILIAN AVIATION

The progress of commercial air transportation from its haphazard beginning in 1919, when the KLM company (Royal Dutch Airlines) opened for business, has been truly fabulous. However, it has been uneven. It has been largely confined to a few Western countries. In 1938, the world's airlines transported 2.5 million passengers and achieved a total of 1.1 billion passenger miles. In 1953, United States domestic and international scheduled services accounted for 18 billion passenger miles and 250 million ton miles (freight). The corresponding figures for Britain were 1.5 billion and 35 million, for France 1 billion and 40 million. United States and European domestic and international scheduled services flew, in 1953, more than three quarters of the passenger miles flown by all the world's services. The annual revenue of the world airlines exceeded 2 billion dollars. Of this total, the United States accounted for approximately two-thirds. Commercial aviation is still largely a Western monopoly, with the United States controlling the largest share. It can be deduced from available figures that the Soviet Union's scheduled lines account for about 8 per cent of the passenger miles flown the world over. The Soviet Union does not operate an international commercial air service. Given the vastness of the Soviet Union's territory, more than three times the size of that of the United States, and its 200 million population, the Soviet effort in the field of commercial aviation appears insignificant when compared with the Western and, specifically, the American achievement.

There are in the world about 120,000 private aircraft. Most are used for auxiliary services by the airlines, by business firms, by flying schools, and for crop dusting, fire fighting, and surveying. Although the number of aircraft registrations has been increasing steadily and rapidly, the number of "family aircraft" is still relatively small: about one plane per 5,000 Americans. Modest as is still the role of the private plane in American business and leisure activities, the United States leads the rest of the world: Americans own about 80 per cent of the world's private aircraft.

AIRPLANES AND ECONOMIC PROGRESS

The unevenness of the world-wide development of aviation reflects international disparities of technological development and standards of living as well as international political divisions. Yet aviation itself could be a potent means for accelerating technological advance, for improving economic conditions, and for building bridges of understanding and friendship between peoples.

The organization of international air transportation has brought together in continuous co-operation the business firms of many countries. The airplane opens up heretofore closed areas, not only for tourism but also for economic ventures, new investments, exploitation of additional resources, and settlement. Air transportation has been a major stimulus to economic development in many areas, especially the underdeveloped nations. In the long run, the most significant contribution of aviation to world commerce will be the opening up of hitherto inaccessible regions to the continuous expansion of trade as regards both markets and resources.

The airplane facilitates the rapid advance of backward countries because it introduces them to the highest forms of modern technology and places them in the position to leap across historical technological cycles directly into the most advanced stage of transportation techniques. Central Africa, parts of Central and South America, and parts of the Middle East (notably the Arab peninsula) have entered upon important industrial developments without launching upon extensive, costly, and time-consuming programs of rail and highway construction. In each case, the establishment of the air transportation system has been the indispensable condition of economic progress. In many backward countries, the very appearance of the airplane, the establishment of airports and repair and maintenance shops, and the recruitment of ground maintenance personnel from native populations have triggered psychological chain reactions resulting in the accommodation, within a matter of years, of preindustrial and, in some instances, of neolithic civilizations to the ways of twentieth-century technology. Although the impact of aviation on old and venerable cultures may not have been everywhere an unmixed blessing, it lessened the social and emotional strains and stresses of modernization by shortening the process and by introducing the backward peoples to most efficient and labor-saving techniques.

Africa

Nowhere, perhaps, has aviation facilitated a more rapid advance from primitive civilization to the machine age than in Africa. From the camel and the donkey Africa moved more or less straight into air transport. It is unlikely, to say the least, that the great transcontinental railroads which, fifty years ago, stirred the imagination of such empire builders as Cecil Rhodes, will ever be built. In Africa, the plane appears to be the most practical means of hauling freight to and from the interior. Roads in Africa cost about $25,000 to $30,000 per mile, and approximately 75,000 miles of highways would have to be built in order to meet present and foreseeable transport requirements. Under these circumstances the airplane, which can move straight in before other forms of transportation are developed, is bound to effect so large a saving in time and money as to suggest the concentration of available resources upon the expansion of air transportation rather than upon the construction of roads and rail lines. This trend is bound to affect profoundly not only the economic geography of Africa but also its political structure: it supplies a compelling argument for the federation and consolidation of many territories whose boundaries were drawn under the conditions of colonial rivalry prevailing in the nineteenth century. Then, coastal points served as bases for expansion into the interior, mostly along the great rivers such as the Nile, the Congo, and the Niger. Air transport now renders the interior regions of the African continent, heretofore inaccessible to each other except by roundabout routes via coastal terminals, increasingly independent of sea and river ports, and tends to draw them together economically, irrespective of their political allegiance.

International trade and industry

In the long run, aviation holds the promise of making economic protectionism increasingly difficult and of freeing world trade of its many, largely archaic, restrictions. Perhaps this view reflects an excessive confidence in the power of economic logic to dispel the parochial preconceptions of nationalism. Yet it is possible to discern current trends that point unmistakably in the direction of "airborne" internationalism.

Aviation has liberated the traveler from the necessity of following traditional routes. A German, for example, traveling to Portugal can now reach his destination without crossing France and Spain. Air travel does away with the tedious formalities of border crossings, including visas and customs inspections Private flying will make the conventional guarding of frontiers very difficult. Intercourse between contiguous countries will grow ever more intimate —as, for example, by the establishment of helicopter bus service between Brussels, Rotterdam, Amsterdam, and Cologne. To put it differently, countries have acquired many additional neighbors, and their historical borders are losing their functional significance —except in the realm of pure politics.

Air transport itself is a fully developed international industry stimulating the exchange of industrial products and raw materials and the progressive development of international communications. Air travel led to the organization of international enterprises in two forms: that of the Scandinavian Airlines System in which three countries have joined on the basis of parity in one firm, and that of the Pan American complex in which one large mother firm allows national affiliates to develop local traffic and to participate in international flying. Furthermore, there is the whole complex of international air traffic agreements concerning transit, cabotage, air bases, signals and communications systems, and rescue operations. Air transport, by virtue of its own developmental requirements, stimulates the expansion of international trade and—last, but not least—the exchange of information.

Political checks

Air transportation, by virtue of low passenger and freight rates and development of new markets, contributes directly to the raising of standards of living everywhere. Although present flight equipment is out of date technologically, it is being replaced gradually, albeit with exasperating delays, by aircraft allowing for cheaper travel not only for passengers but also for cargo. Moreover, as equipment becomes diversified, the slow-haul traffic links on the ground will ultimately be abandoned in favor of air routes. Prominent among the new types of equipment are the turboprops, presently used by the British European Airways Corporation and Air France, long-range high-speed commercial jets, short-range craft, and the rapidly improving "family plane." Air transport has not only invaded the field of passenger travel and cargo carriage (except heavy bulk); it has also created what may be called novel and special transport situations as, for example, the shipment of highly perishable goods between continents and the automobile ferry across the English Channel. Flying is essentially a cheaper mode of transportation in the double sense that it costs less than competitive forms of surface transportation, provided the distance traveled is longer than one to two hundred miles, and that it saves a great deal of time and fatigue. Again, the obstacles to reduction in costs and thus to the integration of aviation economics into world economics, are political in nature, rather than technical.

Although a good case can be made for the contention that the progress of aviation has been fostered by international conflict, an equally good case can be advanced for the argument that threats of war and ideological dogmatism now delay the full exploitation of technical improvements that would accrue, in a milder political climate, to civil aviation. The cost of air travel has not come down to its technologically feasible level because in some countries military aviation "hogs" the best equipment and because in other countries, especially in Europe and Asia, the doctrinaire socialization of air transport has saddled the industry with bureaucratic rigidities, noncompetitive languor, and unprofitable schedules that cater to national vanity rather than to customers' demands.

Contributions

It is tempting to dwell on the spatial and quantitative aspects of aviation, for eye-filling statistics support aviation's proudest claims to record achievements. The more enduring and significant contribution of aviation to the welfare of mankind must be sought, however, in the service it renders to the alleviation of suffering, to the conciliation of conflict, and to the making of that cultural synthesis which alone can render tolerable psychologically the economic interdependence of growing populations and supply the ethical basis for the peaceful coexistence of diverse political systems.

Relief and rescue

Perhaps aviation's most signal contribution to the alleviation of human suffering has been in the nature of disaster relief and emergency rescue as, for example, the American-British air operations—evacuation and food drops—on the occasion of the North Sea tidal disaster in 1953, and the airlift of diverse International Red Cross missions assigned to flood, famine, earthquake, and epidemic areas. Hardly a month passes without airplane flights, from one or several nations, to some country ravaged by one of these scourges, with food, medical aid (including airborne hospitals), seed grain, insecticides, and technical personnel. Planes, flying the weather, spotting vessels in distress, and participating in actual rescue operations, perform nowadays routine services that have become an integral factor of surface navigation: aviation has raised not only the efficiency but also the safety of international shipping.

Diplomatic mobility

Air travel has made possible frequent and virtually instantaneous contacts between statesmen. It is only natural that public attention should focus on those international conflicts that defy solution, and that a crisis resolved quickly loses its news value. A study seeking to determine how many times, during the last ten years, airborne diplomacy has succeeded in composing serious difficulties would be not the least interesting and instructive study in the field of political science. The machinery of the United Nations, and especially of United Nations organizations created for the mediation of international conflicts, is geared, to an appreciable extent, to the speed of air travel. And in virtually all cases of international conflict the speed with which mediatory efforts can be brought to bear upon the situation is of the essence. In the case of mediation in the Kashmir dispute and in the case of the personal intervention of the UN's Secretary-General in Peiping on behalf of the American airmen held by Red China, air transport was, in view of the pressing nature of the issues and the hazards of surface travel, the one and only practical means of transportation. Mr. John Foster Dulles's celebrated ubiquity owes as much to the efficacy of air transport as to the courage and stamina of that highly mobile statesman.

Modern coalition diplomacy and the rapidity with which American military and economic assistance has been made available to America's allies are inconceivable without the ministrations of aviation. The quick succession of high-level diplomatic meetings, now in Washington, now in Manila, then at Berlin, Geneva, London, and Paris, and policy consultations on short notice, such as the increasingly frequent conferences of the Prime Ministers of the British Commonwealth, are characteristic features of the age of air travel. Negotiations and ratifications of treaties which, only fifteen years ago, would have required many months, are now consummated in a few weeks. The time budget of air travel is also of importance to a statesman who, were he to depend on other means of locomotion, must fear that he might lose control at home or who, like the President of the United States during sessions of Congress, must abide by constitutional provisions which limit the duration of his absence from the Capital.

The ease and speed of air travel may not have improved the quality of modern diplomacy; only the diplomats themselves can do that. But air travel has improved indeed the diplomat's chances of dealing effectively with emergencies: a "brush fire" crisis in a remote part of the world need not get out of hand because leaders of the so-called great powers are not able to consult personally and promptly or because teams of observers cannot supply in time firsthand information that precludes—or at least should preclude whenever all parties concerned are animated by a measure of good will—those factual misunderstandings which, in the past, have led to many quite unnecessary wars.

Cultural interchange

Air travel has made possible frequent contacts between scientists and scholars and the display in many places and in a short time of artistic productions. Whole symphony orchestras, operatic companies, and *corps de ballet* are now being flown from continent to continent; managers can schedule tours of a few weeks without interrupting the domestic season. Thanks to the airplane, many more people than ever before can partake of the best other countries have to offer in the field of music, dance, and drama.

Europe for the little man

More striking, however, than the new mobility of cultural productions is the new accessibility of individual national cultures. Air travel has wrought a revolution in the field of tourism that has begun to affect profoundly national attitudes and tastes. Air travel allows a time budget for trips that no other means of transportation can rival. The average traveler with a month's vacation is no longer restricted to travel in his local and national surroundings. This allows for a fuller understanding of other cultures and for the living experience, however brief, of diverse national ways of life. Overseas travel is no longer the privilege of leisure. In the America of a 350-billion-dollar national product, the problem of where to spend one's vacation is, for the average salaried employee and industrial worker, no longer a purely financial one; it is rather a problem of time, to wit, of how to compress the greatest amount of pleasure and recreation into the two to four weeks of the average vacation allowance. Scheduled overnight flights at low tourist rates have brought parts of Latin America and most of Europe within the range of large segments of America's working population. Admittedly, only a modest beginning has been made. Even the low tourist rates are still high enough to cause the average member of the middle- and lower-middle-income groups to think twice before venturing on a two weeks' spree in Paris. But there is no reason to assume that the practice of a Middle Western manufacturer who has launched a program of workers' flying visits to Europe in chartered planes will remain for long a unique experiment in industrial relations. If past trends of air-travel economics are valid indications of future developments, then it is a foregone conclusion that, ten to twenty years hence, an annual vacation abroad will be well within the range of the average American worker's pocketbook and time budget.

World-Mindedness

The widening of the American political horizon and the very real growth of American world-mindedness are due to many causes, among which wartime experiences, the harsh lessons of the cold war, and the heavy burden of world power are probably the most potent ones. There can be no doubt, however, that air-mindedness and world-mindedness are kindred states of mind. International air travel is, by itself, education in international relations. The soaring airplane unfolds the map of the world; the mountain chains that separate nations and the great rivers that carry their trade, ships standing for blue-etched shores, and caravans moving across deserts compose vivid and comprehensive patterns of world geography—maps, so to speak, which are traced to the scale of nature. If it can be taken as axiomatic that any medium which conveys to man a sense of the interdependence of peoples and the arbitrariness of political boundaries serves the cause of peace, then the airplane deserves well of mankind.

PARADOX OF AVIATION

Like most things wrought by human ingenuity, the airplane carries the burden of a paradox. It ministers to the physical security and comfort and to the cultural aspirations of growing numbers of peoples everywhere; it owes its startling technical development largely to the international race for superiority in instruments of destruction. Air transportation could be one of the keys to unlock the bars to international understanding and co-operation—provided statesmen and nations are rational enough to put this rational device to proper and full use. It is one of the most flexible and economic devices for keeping abreast of the tremendous acceleration of such world-wide tendencies as the increase of international commodity exchanges and all peoples' increased dependence on world trade; the increase of populations and the increased demand for new opportunities of migration and settlement; the increased danger of "local" issues bursting into universal conflict and the increased need for coping with "local" conflagrations promptly; and the increased mixing of races and the increased urgency of creating a cultural framework that can encompass mass societies now uneasily jostling each other. Aviation is no panacea of international co-operation. At this stage of technical development, however, the proper use of aviation is an indispensable prerequisite of universal prosperity and peace.

Robert Strausz-Hupé, Ph.D., Philadelphia, Pennsylvania, is professor of political science in the University of Pennsylvania, director of the University's Foreign Policy Research Institute, and lecturer at the Air War College, Maxwell Air Force Base, Alabama. He is the author of Geopolitics (1942), Balance of Tomorrow (1944), Zone of Indifference (1952), and, with Stefan Possony, International Relations (1954).

Report of the Board of Directors to the Members of The American Academy of Political and Social Science for the Year 1954

MEETINGS

YOU will remember that for many years the general topics of our annual spring meetings have related to international affairs. We have received suggestions from members that we should depart from this convention and take up some important domestic subject. After several discussions, your Board decided this year to organize the meeting on April 1 and 2 around the general theme of "Internal Security and Civil Rights in the United States." We are now engaged in recruiting an able panel of participants, including journalists, professors, and governmental officials. It is entirely possible that we shall return to an international subject in 1956.

The family of Edmund J. James, first president of the Academy, and later successively president of Northwestern University and the University of Illinois, has contributed a generous sum to the Academy to enable us, in conjunction with the University of Pennsylvania, to hold a conference to commemorate the centenary of his birth. The substantive topic for the conference, to be held May 20 and 21, 1955, will be "Methods of Financing Higher Education in the United States," and the proceedings will be published as part of the September volume of THE ANNALS. Also, they will be separately bound and distributed widely among university boards of trustees, legislative finance committees, foundations, and other interested groups. High-level financial policy officers, including a number of presidents, from the leading colleges and universities of the middle-western and northeastern United States have accepted our invitation to attend.

It is also our intention to hold a series of seminars on subjects of national interest as soon as the finances of the Academy are able to support them. These will be conducted in much the same way as the James Conference.

PUBLICATIONS

It is our intention to reduce slightly the size of THE ANNALS, partly to trim expenses and partly to encourage our members to read it regularly and throughout. The Book Review section will continue its adequate coverage.

THE ANNALS during 1954 covered these topics:

January	*New Goals in Police Management*
March	*Bureaucracy and Democratic Government*
May	*Prisons in Transformation*
July	*America and a New Asia*
September	*America Through Foreign Eyes*
November	*The Future of the United Nations: Issues of Charter Revision*

Total sales of our publications, as distinguished from circulation among members, amounted to $10,697 for 1954, which compares unfavorably with $11,747 for 1953.

MEMBERSHIP

During 1954 the Academy admitted 3,478 new members, compared to 2,513 in 1953. But 3,490 died or withdrew. We tried to ascertain the reasons for the withdrawals, and 31 per cent of those who did not renew replied to our questionnaire. Their reasons were varied but reflected no appreciable dissatisfaction with our publication or meetings. Since we believe that the optimum membership of the Academy should be a little larger than the present 15,384, we shall increase our efforts to interest qualified persons in affiliating.

FINANCES

Our report for 1953 revealed that there was a deficit in Academy financial operations for 1952 and 1953. We instituted a moderate rise in dues in the early part of 1954, and this, coupled with certain economies in operations, reduced the deficit at the end of 1954 to a third of that of the previous year. But there is still a deficit in operations for 1954 of $7,173. Despite this, it is not our present intention to increase the dues further, nor do we presently intend to make overtures for foundation support. We shall try another year of operations at the present rates before we make a decision on changes.

CHANGE OF OFFICERS

We have granted our President a leave of absence for one year, to enable him to serve as Secretary of Administration of the Commonwealth of Pennsylvania. We took this action following a request made by Governor Leader and President Harnwell of the University of Pennsylvania. During our President's absence, Dr. Sellin will serve as Acting President, as well as Editor.

Respectfully submitted,
THE BOARD OF DIRECTORS

Thorsten Sellin, *Acting President*
C. A. Kulp, *First Vice-President*
Charles J. Rhoads, *Treasurer*
Raymond T. Bowman, *Secretary*
Jerome J. Rothschild, *Counsel*

Otto T. Mallery, M. Albert Linton, Alfred H. Williams, Stephen B. Sweeney, Norman D. Palmer, James C. Charlesworth

January 24, 1955

REPORT OF AUDITORS

January 20, 1955

CHARLES J. RHOADS, ESQ, *Treasurer,*
American Academy of Political and Social Science,
Philadelphia, Pa.

Dear Sir:

We herewith report that we have audited the books and accounts of the *American Academy of Political and Social Science* for its Fiscal Year ended *December 31, 1954.*

We have prepared and submit herewith Statement of Receipts and Disbursements for the year ended December 31, 1954.

The Receipts from all sources were verified by a comparison of the entries for same appearing in the Treasurer's Cash Book with the records of bank deposits and were found to be in accord therewith.

The Disbursements, as shown by the Cash Book, were supported by the proper vouchers in the form of cancelled paid checks or receipts for moneys expended These were examined by us and confirmed the correctness of the payments made.

As the result of our audit and examination, made in the manner above indicated, we certify that, in our opinion, the accompanying Statement sets forth the results of its operating activities for the period under review.

Yours respectfully,

(Signed) EDWARD P. MOXEY & CO.
Certified Public Accountants

AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE

STATEMENT OF RECEIPTS AND DISBURSEMENTS

FOR THE YEAR ENDED DECEMBER 31, 1954

Cash Balance January 1, 1954			
Unappropriated and Trust Funds on Deposit in Girard Trust Corn Exchange Bank		$ 6,227 33	
Cash in Academy Office		46.36	$ 6,273.69
Receipts			
Members' Dues		$48,831 01	
Students' Dues		3,098.50	
Life Memberships		400 00	
Subscriptions			
Individuals	$ 30.40		
Libraries	4,067.25		
Agents	17,676.46	21,774.11	
Sales		10,697.18	
Advertising		3,626.41	
Income from Investments		11,605.49	
Proceeds from Sale of Securities		37,379.62	
Special Donations		45.51	
Translation Royalties		29.22	
James Fund		5,000.00	
Refund of Excise Tax on Purchase of Asset		56.07	142,543.12
			$148,816 81
Disbursements			
Office Expense		$ 9,542.24	
Philadelphia Meetings		5,766.88	
New Membership Expense		15,565.99	
Publication of Annals		50,492.24	
Membership Records		7,432.73	
Sale of Annals Expense		3,267.44	
Property Improvements		195.00	
Discount Collections & Exchange		1.05	
Social Security Taxes		733 73	
Prepaid Postage		74.53	
Professional Services—President of Academy		5,000.00	
Employees' Retirement Payments		5,558.30	
Securities Purchased		23,268 97	
James Fund Expense		77.91	
Accounting Department Service and Expenses		4,867.53	
Retirement Fund Expense		31.82	
Advertising		1,022.07	
Trust Agency Expense		471.46	
Hospitalization		31.80	
Prepaid Insurance and Bonds		76.85	133,478.54
Cash Balance December 31, 1954			$ 15,338.27
Represented by:			
Unappropriated and Trust Funds on Deposit in Girard Trust Corn Exchange Bank		$15,221.20	
Cash at Academy Office		117.07	$ 15,338.27

Book Department

PAGE

INTERNATIONAL RELATIONS AND WORLD GOVERNMENT 144

UNITED STATES GOVERNMENT AND HISTORY 152

ECONOMICS AND INDUSTRY . 163

SOCIOLOGY AND EDUCATION 168

PHILOSOPHY AND RELIGION . 174

SPECIAL TOPICS ABROAD

COMMONWEALTH OF NATIONS . 178

SLAVIC COUNTRIES 181

WESTERN CONTINENTAL EUROPE . 185

OTHER COUNTRIES .. . 188

CORRECTION 194

LETTERS TO THE EDITOR . . 194

OTHER BOOKS 195

INTERNATIONAL RELATIONS AND WORLD GOVERNMENT

ARNOLD J. TOYNBEE. *A Study of History*. Vols. VII–X. Pp. xxxii, 772; x, 732; viii, 759; viii, 422. London; New York; Toronto: Oxford University Press, 1954. $35.00.

The first six volumes of Toynbee's *Study of History* were published in 1934–39. Of the new (four) volumes completing this vast work, Volume VII gives a further analysis of the nature and role of the Universal States and the Universal Churches as the phases in the growth and decline of civilizations. Volume VIII deals with the Heroic Ages and the contacts of civilizations in space. Volume IX is devoted to a study of the contacts of civilizations in time, of the law and freedom in history, and of the prospects of the Western civilization. Volume X is made up of essays on eminent historians, on chronology, of acknowledgments, and index.

Since Toynbee's fully developed "philosophy of history" was given in the first six volumes, the reviewed volumes do not add much to his theoretical framework. Their novelty consists mainly: (a) of some new details concerning the Universal States, the Universal Churches, the Heroic Ages, and the interaction of civilizations in space and time; and (b) of the change of some of Toynbee's conclusions given in the first six volumes.

As to Toynbee's theory of history, it has its strong and weak points. In my previous criticism of his *Study of History* I have shown that Toynbee's framework is a variation of O. Spengler's scheme which, in its turn, is a variation of N. Danilevsky's theory of history published in 1863. All three theories make a fatal error in taking a vast dump of diverse social and cultural phenomena, not integrated together by meaningful or causal ties, for a real unified system called "Culture-Historical Type," "High Culture," or "Civilization." Not being integrated unities, such dumps of cultural and social phenomena cannot either be born or grow or disintegrate and die. For this reason, many of the conclusions of these authors concerning "the birth," "the growth," "the breakdown," "the disintegration," and "decline" of civilizations are built on a foggy foundation and crumble by themselves as soon as the fatal error is perceived.

The main changes in Toynbee's views concern two points. While in the previous volumes the Universal Religions were viewed as "the bridges" between the great civilizations, in the new volumes the great civilizations are considered as the bridges between the great Religions. While before Toynbee interpreted all great civilizations as philosophically equivalent and contemporaneous, now he classifies them in chronological and evaluative order as the progressive steps for realization of the ever greater and higher religions. Since both interpretations are not so much a scientific description of the empirical relationship between civilizations and religions as much as the subjective evaluations of whether civilizations ought to be the means for the end-value of religions, or religions should be the means for the bigger and better civilizations, the significance of this shift in Toynbee's views lies beyond the sphere of science.

When we turn to Toynbee's empirical generalizations, many of these appear to be either platitudinal or onesided or fallacious. Thus he indefatigably repeats that "spiritual progress is subject to a 'law' proclaimed by Aeschylus" that we "learn through suffering," and that this "learning by suffering" is the only way to spiritual ennoblement of mankind. Stating so, he evidently forgets that suffering produces not only saints, but also criminals and "the worst of beasts"—human animals. He entirely overlooks the negative effects of suffering: suicide, mental and physical disease, agressiveness, criminality, brutalization, which "suffering-frustration" generates more frequently rather than spiritual ennoblement. Instead of the much more adequate "law of polarization" infrustration, suffering, and calamity, he thus gives us onesided pseudo law of the "learning through suffering" which does not stand an elementary empirical test. Another example. For corroboration of his preconceived theory that the "declining" civilizations go through the cycle of: "premonitory wars," a "general war," a "breathing space," "supplementary wars," and "general peace," he gives us five cycles of this kind for the period: 1494–1945. When, however, his data are checked by the number and duration of the wars, the size of the armies, the magnitude of war casualty for each of his cycles, several of his periods of "general peace" turn to be as belligerent as his periods of "general war," and *vice versa.* His theory of the cycles of war-peace is thus clearly contradicted by the relevant empirical data. Third example of Toynbee's empirical fallacies is given by his credulous acceptance of Jung's theory of the unconscious, by the identification of this unconscious with the divine element in man, and by Toynbee's classification of the great religions (Hinduism, Christianity, Islam, and Buddhism) as "introvert" or "extrovert." Contrary to Toynbee, the future of mankind would indeed be hopeless if its spiritual and creative progress were depending upon the unconscious biological drives and their instinctive-reflexological mechanisms given in all animal species. By definition the "unconscious" activity is automatic and fixed; it cannot think and cannot create because any thinking and creative activity are always conscious or supraconscious processes. Instead of investing his hopes for the future spiritual ennoblement of man into "the supraconscious"—which is the main source of all the great creative achievements of man—Toynbee expects the salvation from the least creative unconscious forces viewed by him as the divine element in man. As a fourth sample of Toynbee's empirical errors his diagnosis and forecasting of the future of the existing civilizations can be mentioned. According to his theory practically all civilizations, except the Western one, have been either dead for many centuries, or are in a hopeless mortal agony at the present time. This equally concerns the Hindu, the Chinese, the Russian, the Arabic, and all the other "fossilized" and disintegrated civilizations. The only hope for the future of mankind lies in the Western civilization which also is in a dangerous state.

If we take one by one of Toynbee's empirical generalizations, most of them will be found to be either onesided or fallacious. This is largely due to Toynbee's poor knowledge of a vast body of sociological, psychological, and anthropological studies in the fields of social and cultural mobility, migration, diffusion, and transformation; in the field of sociocultural rhythms and periodicities, social organization and disorganization, cultural integration and disintegration, and so on. Despite vast literature quoted and referred to in Toynbee's volumes, they contain almost no references to hundreds of important studies by psychosocial scientists of the problems treated by Toynbee.

When Toynbee discusses such problems as "law and freedom in history," "the truth of science and the truth of religion," he rarely touches the fundamental points of this sort of problem. He rather goes around or dodges these points and delivers to us mainly the vague generalities and unclear conclusions often backed up only by numerous quotations from the Old and the New Testaments. His footnotes in these parts show again his limited knowledge of the most important philosophical and scientific works dealing with this sort of problem.

Viewed as a whole, these volumes represent an eclectic mixture of science of history, philosophy of history, ethics and politics, theology and religion.

Side by side with these shortcomings, the *Study of History* has many strong points. It contains a multitude of remarkable insights and excellent elaborations of several basic topics of historical and social sciences. It opens the new vistas on many dark problems of these sciences. Now and then it furnishes the fresh and strikingly fruitful interpretations of several historical and social processes. Even when Toynbee speaks as a prophet, religious thinker, philosopher, or moralist, his utterances deserve our full attention.

To sum up: in spite of an overabundance of misreadings of historical events and other shortcomings of Toynbee's *Study of History,* it is one of the significant works of the middle of the twentieth century in the field of historical and social science

PITIRIM A. SOROKIN

Harvard University

LOUIS J. HALLE. *Civilization and Foreign Policy: An Inquiry for Americans.* Pp. xxviii, 277. New York: Harper and Brothers, 1955. $3.75.

Foreign policy by slogan is a familiar feature of the American scene. In recent months the concept of "massive retaliation," so popular a year ago, has yielded to "atomic stalemate" and "balance of terror." The vice of all such catch phrases is their tendency to conceal basic issues that cannot be resolved by clichés.

The present book represents a serious attempt to free the discussion of foreign policy from this tyranny of ignorance and oversimplification. The author has stated his premise clearly. "If we are to have an effective foreign policy we need to base it on a conceptual scheme that reveals and explains the world in terms that bear the test of practical application" (p. 52). The major portion of his book is devoted to the development of such a theory of foreign policy.

Mr. Halle has not written a manual or a handbook of formulas that can be factored into easy answers to complex international equations. Rather, he identifies the considerations that affect a nation's foreign policy and examines them in the light of existing conditions. American foreign policy must take into account the spirit of our institutions; the circumstances that made possible our early freedom from European political entanglements; the events that have removed these historic protections and projected us into international diplomacy; the alternatives now open to us: isolation, dominion, coalition.

After examining each of these alternatives Mr. Halle concludes that coalition offers the only reasonable policy of success so he proceeds to outline what he regards as the minimum essentials of a foreign policy to prevent our destruction in a hydrogen bomb world. These essentials include the maintenance of a nuclear offensive power to deter its use by an opponent, a defense against nuclear attack adequate to discourage an opponent from attempting to incapacitate us by a surprise attack; military forces capable of frustrating an attack of a more traditional nature in the event that nuclear power is not used by either side.

The book is meaty and thought provoking. In developing his argument he considers such diverse topics as the nature of political power, the validity of the balance of power concept, the growth and decay of cultures and civilizations; the conflict of nationalism and Communism in Soviet policy, the particularistic character of Chinese Communism and the problem this presents to Russia. Whether Mr. Halle has succeeded in constructing a theory of foreign policy may be open to question. That he has written one of the most informative and useful guides to this subject is certain.

LAWRENCE H. CHAMBERLAIN
Columbia University

ALFRED H. KELLY (Ed.). *American Foreign Policy and American Democracy.* Pp. 170. Detroit, Mich.: Wayne University Press, 1954. $3.50.

Of the five Franklin Memorial Lectures for 1952–53 that make up this volume Professor Quincy Wright's is the most stimulating. Entitled "American Foreign Policy and the Concept of International Law," it sets forth alternatives of American policy in terms of an irreconcilability between power politics and international order. At the end, however, after singeing the whiskers of those who advocate power politics, Dr. Wright justifies the respect which this reviewer and so many others hold for him by observing that we cannot expect enforcement of the international legal order "unless the balance of power is relatively stable." Power, having been thrown out the front door, is brought in again at the back.

The second lecture, on "Military and Strategic Aspects" of our policy, is by one of our ablest military thinkers, Colonel G. A. Lincoln. It deals more with psychological factors in international relations, however, than with military strategy. Perhaps this reflects the poverty of our traditional thought in this field (Mahan excepted). No American speaking on strategy has much to build on in the way of developed theory since the writings of that un-American and dated thinker, Clausewitz.

Professor Bossenbrook, in the next lecture on "The United States, the Soviet Union, and Western Nationalism," is so compendious and abstract that the reader must do some occasional stretching to maintain contact with reality.

Next, in "American Foreign Policy and its Critics," Professor Dexter Perkins takes issue with Messrs. Hans Morgenthau and George Kennan, but in such a pleasant fashion that he seems to be merely amusing himself by throwing pebbles in their direction.

Perhaps the most thoughtful of these lectures is the final one, on "American Foreign Policy and the Future of American Civilization." Here Professor Kelly offers an historian's opinion "that the ultimate solution to the cold war is that the dynamism of Western civilization and the inexorable march of time will ultimately make it irrelevant. If this seems a difficult idea to grasp, remember that for the historian, nothing is so certain as the proposition that the present, too, will die, that it will become part of the past, and that the men of other generations will have new problems. . . . We cannot know what these problems will be; we can only be fairly certain that they will not be those which cry out to us now."

LOUIS J. HALLE
University of Virginia

JACQUES FREYMOND. *De Roosevelt à Eisenhower: La politique étrangère américaine, 1945–1952.* Pp. 154. Geneva: Librairie E. Droz, 1953. No price.

Reflecting the lively concern with American policy recently evident in Europe, this volume traces the revolutionary change in American foreign policy from isolationism to its present active involvement throughout the world.

Volume VI in the useful series of studies in economic, political, and social history, the book is essentially an analytical history of the major events in the postwar period—suitable attention is given the Truman doctrine, the Marshall plan, the Berlin blockade, North Atlantic Treaty Organization, the Chinese Communist issue, the "great debates" in Congress, Korea, and economic policy.

Although based on solid documentation (the author has examined an impressive quantity of government documents—some, such as *Resources for Freedom,* neglected in our own literature), its chief interest to Americans will probably derive from the comments rather than from the descriptive content. In so short a study, there is naturally little new of the latter.

Neither neutralist nor apologist, Freymond feels that on balance the United States has done a remarkable job of rising to the responsibilities of its new power position. He finds, however, three major sources of weakness. First there is the relative weakness of our diplomatic personnel. He traces this to inexperience and lack of historical tradition in great power diplomacy, but feels we will improve with time and experience. Second, there is danger of excessive concern with domestic issues: American opinion must learn to subordinate regional and special group interests to national interests when there is serious conflict on important foreign policy. Third, there is a subtle source of danger from the very strength of the United States, from its unprecedented relative power: "the exclusive search for the national interest or national security, legitimate though it may appear, is full of dangers for the United States. It may lead, more or less unintentionally, from a policy conceived as basically defensive to actions felt menacing by the very ones they are meant to protect. The weight carried by the United States in world affairs is such —and the weakness of her partners so great—that if she does not herself take care to erect barriers to her power she may well risk crushing the others."

He finds evidence that even this last lesson is being learned: that American publicists and policymakers include many alert to such dangers and striving to remedy them. This conclusion is typical of a thoughtful and balanced work.

OLIVER BENSON

Northwestern University

THOMAS I. COOK and MALCOLM MOOS. *Power Through Purpose: The Realism of Idealism as a Basis for Foreign Policy.* Pp. 216. Baltimore, Md.: Johns Hopkins Press, 1954. $4.00.

Apparently the object of this book is to demonstrate that Roosevelt's "Four Freedoms" can be made to work (although no mention is made of the "Four Freedoms," and although their author assumed that Soviet Communism was in agreement with them). *Power Through Purpose* should be read as power through *moral* purpose, the "mission" of America being to establish a moral empire which shall girdle the globe and gladden the "hearts of peoples liberated with our assistance" (p. 212). Since Communist tyranny is irreconcilable with this mission, "coexistence" presumably being impossible, we must first "contain" it and then "overthrow" it. Cook and Moos assume that American foreign policy can move logically and deliberately from one position to the other, that other nations in the "free world" will move willingly in the same direction, and that Soviet (and Chinese) Communism will fall back with the same measured logic and deliberation. Joshua will march seven times around the city, the people will shout "with a great shout," and the Communists, like the defenders of Jericho, will be utterly destroyed!

It is difficult for an historian to criticize this new dialectic for "God's American Israel" (Reinhold Niebuhr's very apt phrase for the American concept of destiny). The reviewer confesses to a little awe and even respectful admiration for such learned exuberance and devout confidence. Cook and Moos fancy themselves as intellectual knight errants embattled against the so-called "power politics" school of American diplomacy which has worked out a different dialectic. Over and over again they proclaim that theirs is the only true realism. To this student, who refuses to see history as dialectic, the antithesis is not so apparent. Everyone, it seems, is a "realist."

Cook and Moos have furnished some challenging intellectual fare. It is Woodrow Wilson (or perhaps Don Quixote) in modern dress. In spite of their aversion to "power politics," the authors bow occasionally in that direction. They could hardly escape doing so, and yet invoke history to the extent that they have done. Britain is lauded for her past success in avoiding "the inconveniences of unadaptative legal principles" (p. 85), and America is exhorted also "to avoid the statist way." This sounds suspiciously like an injunction to play the balance of power. All eight chapters of the book are interesting and stimulating, though some of the historical assumptions are certainly open to challenge, and though it is difficult to discover a recommended foreign policy that differs in specifics from that which has been propounded by the "realists." The United States is depicted historically as a "social nation" rather than a "political nation," that is, a nation dedicated to humanitarian ideals in contrast to a national state concerned only with its own interests. This in itself is a bit of American nationalism on the part of the authors, and a very considerable oversimplification of history.

RICHARD W. VAN ALSTYNE
University of Southern California

ARTHUR P. WHITAKER. *The Western Hemisphere Idea: Its Rise and Decline.* Pp. x, 194. Ithaca, N. Y.: Cornell University Press, 1954. $3.00

Under a new title, this volume deals with an old theme, the Pan-American theme It contains eight chapters with the following suggestive titles: "Meaning and Origin of the Western Hemisphere Idea"; "Political Expression of the Idea: The American System"; "Divided America"; "New Synthesis: Sarmiento and Blaine"; "Drago's Economic Corollary of the Monroe Doctrine"; "Whose Hemipshere?"; "The Hemisphere of Peace"; "Two Worlds, New Style: Reunion with Europe."

It is remarkable what a well-informed and gifted writer can accomplish by assembling familiar facts under a fresh title and a rigidly logical frame of reference. The result is a significant and most interesting book. The conclusion is that the United States is no longer primarily interested in its Latin-American neighbors, and that they are not likely ever again to occupy a special place in its esteem. The world crisis that began in 1914 has made them subordinate to Europe and the Orient in the policies of their big neighbor

The only important topic that Professor Whitaker fails to consider is the wisdom of this shift in emphasis, which became quite evident during the 1940's and 1950's A discussion of this topic would probably begin with a consideration of the fundamental objectives of the foreign policy of the United States, the objectives of security, and prosperity. Or perhaps it would start with the foundations of the platform of isolationism, the early advantages of isolationism, and the besieging forces that eventually impelled the government of the United States to abandon that platform: the drive for foreign markets and sea power; the search for investment opportunities abroad; devotion to democracy and peace in international relations; and the disturbance of the power-balance by the rise of Japan and Germany and the relative decline of Great Britain. An adequate examination of this topic would finally raise these fundamental questions: were the departures necessary and were they wise from the standpoint of national security and prosperity? An attempt to answer them would involve as much speculation as history, and the author chose to avoid the issue.

I grant him the right to delimit his subject, but I cannot help feeling that he should have included a final chapter setting forth the fact that Latin America is not being entirely neglected, nor is this region likely to be neglected in the future. Its resources and its strategic geographical position are too important to the United States. Latin America is included in programs of foreign investment, technical aid, and cultural relations; and if and when the power-balance is restored by means of regional alliances and an effective United Nations, the Western Hemisphere Idea may be resuscitated, or if this balance cannot be restored, Latin America may recover its primary place in the esteem of the United States as a significant part of fortress America.

On certain minor points, one might wish to argue with its author. Nowhere does he state clearly the limits of the isolationist policy, which never included any severe restraints upon foreign trade and investment. Nor was it as monolithic as he asserts down to the 1890's (p. 92), as might be suggested by the empolyment of the United States Navy to open the ports of Japan and Korea. But I shall refrain from dealing with trivialities.

J. FRED RIPPY
University of Chicago

JEAN-BAPTISTE DUROSELLE and others. *Les relations Germano-Soviétiques de 1933 à 1939.* (Cahiers de la Fondation Nationale des Sciences Politiques, No. 58.) Pp. 279. Paris: Librairie Armand Colin, 1954. No price.

The relations of Germany with Communist Russia after World War I have concerned scholars and others before, during, and after that time. John Maynard Keynes warned his readers in 1919 that the Versailles peace terms would force Russia and Germany together, into a co-operation of danger to the victor powers Writing in jail a few years later, Hitler bitterly attacked the Weimar Republic for establishing close treaty relations with Communist Russia and underscored the warning he himself was to disregard, namely, that Germans should not have friendly relations with a country whose purpose was to destroy Germany. And ever since 1939 students of history have been trying to understand the two decades that followed Versailles in an effort to make sense out of the relations Russian Communism had with the Weimar democracy and Nazi totalitarianism. For the historian the problem is a peculiarly bewildering and paradoxical one. Accustomed to a European history wherein the enemy of one war becomes an ally during the next, they find it difficult to arrive at an intelligible explanation for a situation where time fails in its work of partitioning events into simple tandem arrangements capable of being understood and allows avowed enemies to maintain rather close and friendly relations while entertaining the greatest fear of each other's power and ideology.

In this excellent study Professor J-B. Duroselle and Professor Jacques Grunewald describe the diplomatic and economic relations of Germany and Russia from Hitler's advent to power, Grunewald dealing with the period down to the conclusion of the anti-Comintern Pact and Duroselle with that thereafter, down to the time Molotov succeeded Litvinov. Since the foreign policy of Russia in this whole period was directed by Litvinov, Professor Ráoul Girardet tries to analyze the enigmatic career and character of the Russian who believed in collective security and in co-operation with the Western powers. The most important chapter in the book is the last one, in which Professor Georges Castellan gives a convincing account of the relations of the Reichswehr with the Red Army. Here he shows how Germany used Russia after 1920 to promote her own war industries and to provide military training for Germans in defiance of the provisions of Versailles. He also goes into a detailed investigation of the purge trials of 1936–38 to show that a number of people executed for high treason and for collaboration with Russia's enemies were guilty of no more than co-operation with the German army in accordance with Stalin's own wishes.

This story of Russo-German relations would have been fully told for the period if there had been an additional chapter describing the espionage activities of Russian Communists in Germany.

HARRY R. RUDIN

Yale University

QUINCY WRIGHT and others. *Research for Peace.* Pp. xii, 296. Amsterdam: North-Holland Publishing Company, 1954. $3.50.

In 1951 the Institute for Social Research in Oslo, seeking to clarify "the possible relations between scientific research and positive action in the mediation and solution of human conflicts," announced a prize contest for the best essay on "the Relevance of Scientific Research to the Peaceful Solution of International Conflicts." It has now sponsored the publication of the three prize-winning papers, and one of its members reviews them and comments on ideas contained in some seventeen other essays submitted in the contest.

The chief significance of this initiative lies in its recognition of the importance of applying as far as possible the methods of science to the peaceful solution of problems arising in the relations of national states. As such it reflects the trend in recent years to reject the deductive method characteristic of most pacifist thought of the nineteenth century and seeks to utilize the inductive approach of the physical sciences for the solution of social problems.

However, for man scientifically to study man in his social relationships is admittedly a far more exacting task than for the astronomer to study the stars in their courses. Momentous new scientific discoveries leading to greater understanding and control of the forces of nature have not as yet been paralleled by a growing understanding and control of human nature. Nevertheless, one must hope that even in the field of international relations if scientifically tested generalizations concerning specific social institutions and beliefs point to their inadequacy or harmful character, a new perspective may develop with respect to them. Thus they may be abandoned, although human nature itself has not changed.

It is universally recognized, however, and for obvious reasons, that it is much easier for the so-called exact scientists to agree on what they are looking for and how to find it than for the social scientists. In particular "the fluidity and boundlessness" of the field of international relations, as one of the essayists characterizes it, was well illustrated in the contributions to this contest. The essayists were far from reaching a consensus on priorities for peace research, and in some instances they even questioned whether research into the causes and prevention of war is as important as concentration on the positive requirements of peace. Moreover, although most of the contestants seemed to accept the continued existence of sovereign and independent national states, and tailored their essays accordingly, a few were disinclined to postulate for the future the fundamentals of the present order.

Pondering the views of the foregoing essayists, and especially the warnings of our most respected scientists, one has the uneasy feeling that it may, indeed, be later than we think, and that research of a more fundamental nature may be indicated. For while the pacifists of the late nineteenth and early twentieth centuries could argue that eternal peace was demonstrably in man's *interest,* nuclear scientists today tell us that it is necessary for our *survival.* If so, no tinkering with the present international order will serve.

FRANK M. RUSSELL
Berkeley, California

J. F. C. FULLER. *A Military History of the Western World: From the Earliest Times to the Battle of Lepanto.* Pp. xiii, 602. New York: Funk and Wagnalls Company, 1954. $6.00.

This volume, the first of three which will constitute a military history of western peoples down to the present, is a reminder from the pen of one of England's leading military critics that war and not peace has been the characteristic state of international relations in the past; and that this together with the imminent threat of the outbreak of hostilities on a global scale today is adequate reason for a study of conditions which produce wars, the factors which determine their outcome, and the use or misuse of their success by victorious peoples. It is a sober, not a sensational narrative, and so all the more deserving of serious attention. Following an Introduction which gives a rapid survey of military developments from the fifteenth century B.C. to 490 B.C., twenty chapters are devoted to the analysis of as many campaigns culminating in decisive battles. These chapters are linked by nineteen short chronicles aimed at giving a politico-military background for the campaigns studied in detail. Quite properly, the author makes no distinction between battles on land and battles on sea, for in this period naval engagements followed the pattern of land fighting, and there was no real difference between the training and functions of a general and an admiral. One is glad to find both Marathon and Poitiers omitted from the list of decisive engagements, but will not so readily agree that Pydna was more significant in this respect than Cynocephalae and Magnesia. The analysis of military operations is lucid, in general convincing, and shows evidence of careful study of ancient and medieval sources. References to modern works indicate wide reading, but there is no bibliography and the footnotes do not reveal how completely the writer has mastered the specialized literature of his subject. Naturally, specialists in military history will dispute details of battle plans and the like. For example, many will prefer the Kromayer-Veith disposition of the Greek fleet at Salamis to that adopted in the book. Professional historians will find more serious ground for challenging some of the many judgments pronounced on historical developments in the chronicles. What impresses most of all, however, is the evidence that the basic principles of warfare have not changed since the days of Salamis, and that politicians, military leaders, and indeed whole peoples have shown the greatest incapacity to profit by the experience of both their own and other countries either in the remote or the immediate past in the preparation for and conduct of wars or in the formulation of military policy.

A. E. R. BOAK

University of Michigan

AMELIA C. LEISS and RAYMOND DENNETT (Eds.). *European Peace Treaties After World War II.* Pp. xvi, 341. Boston, Mass.: World Peace Foundation, 1954. $4.75.

This very useful book is a supplement to the World Peace Foundation's series *Documents on American Foreign Relations.* Its second half contains the text of the peace treaties with Italy, Bulgaria, Hungary, Rumania, and Finland. The first half is given to a narrative report on the negotiations leading to these five documents. There is a general account of the diplomatic setting and procedure, followed by the story of the actual negotiation broken down by chief issues regarding each of the treaties. The story is told from the official documents and some of the memoirs of the protagonists without any attempt to analyze, evaluate or appraise. The positions of the negotiating powers and their modifications in the course of the conferences are clearly outlined. It is a reference book which the student of diplomatic history can hardly afford not to have on his shelf. And the general reader may, with its help, reflect on how far things have moved from the order that those peace treaties intended to establish, and how little of the diplomatic accomplishment of 1946 still stands today.

GERHART NIEMEYER

Yale University

UNITED STATES GOVERNMENT AND HISTORY

PAUL HORGAN. *Great River: The Rio Grande in North American History.* (Vol. I: *Indians and Spain;* Vol. II: *Mexico and the United States.*) Pp. xvi, 447; vii, 573. New York: Rinehart and Company, 1954. $10.00.

Mr. Horgan has written many books but none has been a greater achievement than this one. Years of meticulous research were spent in gathering material for the *Great River.* The author has lived for years in the arid area of the Rio Grande At home in the Southwest, Mr. Horgan has written as a lover of the region.

Probably Mr. Horgan has had the most difficult assignment of all who have written of the rivers of America. He made his task a labor of love and has told a story that is unexcelled. His artistic skill is revealed in the vivid descriptions, whether he is writing about a pueblo dance or a river house. Typical of the author's talent for characterization are the pen portraits of Sam Houston and General Zachary Taylor.

The Rio Grande river has a twofold role in American history. It both divides and unites. It marks the boundary line between peoples of Spanish origin and folk of Anglo-Saxon derivation. It separates two vastly different cultures, two contrasting civilizations, yet these two peoples unitedly belong to the Rio Grande basin. They share the mountains from which enough water is squeezed to create the upper part of this great river. Throughout the long course of this meandering stream these different nationalistic groups share in the history of the Great River. All of this story may be gleaned from these pages, numbering almost a thousand. Although he is fair to the Anglo-Saxon, the writer is in love with the Spanish.

Each of these volumes is divided into

two books. The Indian Rio Grande and the Spanish Rio Grande compose the first volume while the Mexican Rio Grande and the American Rio Grande constitute the second. The stream's history is told somewhat chronologically. The rich variety of content is seen in the chapter on the "Stuff of Life" in Book I, in "Hacienda and Village" in Book II, or in "Collective Prophecy" of Book IV. There are a total of eighty-four chapters in the two volumes supplemented by four appendices. Although both volumes contain maps and each volume has a list by chapters of the sources, the historian will regret that the literary artist in the role of a historian did not use the paraphernalia of the craft. In addition, the last volume has a general bibliography and an index. This is writing at its best and history in its most interesting form. The *Great River* may not receive the Pulitzer Prize but it will be a serious contender

GEORGE C. OSBORN
University of Florida

EDGAR EUGENE ROBINSON. *The Roosevelt Leadership, 1933–1945.* Pp. 491. Philadelphia; New York: J. B. Lippincott Company, 1955. $6.00.

To appraise justly this stimulating book, one should note its origin. Chosen, under the terms of a substantial bequest, to write "a contemporary appraisement of the Roosevelt influence . . . without fear, favor or prejudice . . . ," the author (to use his own phrase) has written "the story of the influence" of Franklin Delano Roosevelt in one volume instead of several. The result is a vividly impressionistic, critical, yet fair, essay, with Yalta as its climax, about the impact of Roosevelt's personality on the nation and the world in his twelve years as President, and since.

The author has supplied a monumental bibliography, but he has omitted or inadequently rendered many relevant facts. He quotes, throughout, the opposing current partisan views of Hoover's and F.D.R.'s self-serving, often retroactively edited, "Public Papers and Addresses," leaving us to pick our way between them. He speaks of F.D.R.'s "tragedy" in being "overwhelmed by the inexorable forces of his time," somewhat as though his leadership had been that of a dedicated and martyred idealist. True, he moved greatly at a very few momentous junctures; but this resourceful, gay-spirited, zestful, and at times courageous, adventurer among expediencies, with his genuinely humane intentions and his dominant personal ambition, instinctively avoided lost causes and major risks after attaining power. In some problems, crucial for his nation or the world, such as labor, the currency, and neutrality, he withheld his strong leadership deliberately, or led wrongly for his own interest, until conditions, which could probably have been controlled earlier, had indeed become overwhelming. In some others, as throughout his dealings with Russia, from Stalin's immediate violation of the recognition agreement until after Yalta, his fatuous faith in his own judgment and in abilities which he did not possess, brought misfortune beyond remedy. The tragedy was his, as part only, of the ageless, generic one—mankind's progress being ever thwarted by self-bound man.

Was the bequest soundly understood or executed? Can one convincingly appraise a man's influence in a situation without giving its essential facts? The author says he attempted this for the sake of speed, in the belief that appraisals made today will be used by the lawmakers tomorrow—the historian's abidingly comforting illusion. One may wish that Professor Robinson, with his background of distinguished writings about the Roosevelt era, had developed a full-scale factual basis for his "appraisement"; yet, even with the handicap he embraced, he has made a real contribution to posterity's understanding of Roosevelt's leadership.

LOUIS B. WEHLE
New York, N. Y.

WILLIAM FRANK ZORNOW. *Lincoln and the Party Divided.* Pp. xi, 264. Norman: University of Oklahoma Press, 1954. $4.00.

In early 1864 the Republican Party, operating under the name of the Union Party, appeared to have excellent prospects of success in the Congressional and the Presidential elections of that year. But the

Republican Party had been from its victory in 1860 deeply divided between the radical wing, whom the author calls Unconditionals, and the more conservative majority. This radical group were convinced that Mr. Lincoln was unsuited to complete the task of winning the war and especially the business of reconstruction. He desired to treat the vanquished humanely. They would be merciless.

Professor Zornow passes before us in review the three outstanding candidates of the Unconditionals—Salmon P. Chase, Benjamin Butler, and John C. Fremont—and reveals the maneuvering of each to prevent Lincoln's nomination and gain it for himself. Lincoln's finesse, his unsurpassed skill in political maneuver, rendered his nomination inevitable. These and the president's hold on the mass of Republicans also made the scheming and manipulation of his opponents for the nomination ridiculous, indeed pitiful.

After Mr. Lincoln's nomination the bloody failures of Grant in Virginia to gain victory and Sherman's inability in his Georgia campaign to pin Johnston down in the summer of 1864 carried Northern morale to the lowest point of the war The Unconditionals tried in vain to have Lincoln removed as the nominee of the so-called Union Party and to substitute a more vigorous radical leader. With the Union victories of late August and early September—the capture of Atlanta and Mobile Bay—the Unconditionals began falling in behind his candidacy, but with the firm resolve to destroy the President and his program as soon as the war ended.

The Democratic Party was also bitterly divided between the Copperhead faction—extreme state rights champions and opponents of the war as unnecessary to restore the Union—and the main body of conservative Democrats. The latter opposed Lincoln's war policies as unconstitutional and destructive of civil liberty; they would continue the war, however, to preserve the Union, but would not make emancipation a condition of union. The Democratic Party would, as a first step to reunion, call a convention of all the states, including the Confederacy, to attempt to work out a settlement. Despite the fact that McClellan, who stood for the preservation of the Union, was nominated for the presidency, the Republicans were able to brand the entire Democratic Party as traitors and Copperheads—which has a very modern sound. The author is of the opinion that the false issue of domestic treason rather than the flagrant military interference at the polls enabled the Republicans to win the election, even though by a very narrow popular margin. It was, though a narrow one, a "popular endorsement of Lincoln the man" but not "necessarily an endorsement of the program for which the man stood." By his great skill he had held the Unconditionals in the party and thereby cemented its unity. "In holding the party together he did much to assure the ultimate victory of the Unconditional program he had so long opposed." This fixed for twenty years the unbroken rule of radicalism followed by another sixteen years of power after the Cleveland interlude and the triumph of big business. This was not what Lincoln had striven for

Mr. Zornow has written a scholarly and important book. He is realistic and penetrating in dealing with unpleasant facts.

FRANK L. OWSLEY

University of Alabama

ROBERT J. MORGAN. *A Whig Embattled: The Presidency Under John Tyler*. Pp. xiii, 199. Lincoln: University of Nebraska Press, 1954. $3.50.

There is no lack of historical scholarship concerning this period. The following three claims are made in justification of this new volume. It is the first study of a single presidency in all its aspects. It refutes the conventional picture of Tyler as a vain, ineffectual president by showing him as a courageous, articulate, but much misunderstood statesman. It brings a dramatic focus upon those perennial problems of authority and initiative which confront every President. The third point is most valid, and alone should be sufficient to justify purchase of a reasonably priced book.

Dr. Morgan analyzes in seven chapters: the effect of the precedent set when Tyler chose the title of "President" instead of accepting the suggested designation as "Vice-President, now exercising the duties of President"; Tyler's use of the veto; Cabinet crises, which, while producing a total of nineteen members to fill six offices in less than four years, nevertheless effectively thwarted a nascent swing toward parliamentary government in the United States, which had been engineered during the month of Harrison's administration through the technique of selecting a pliant President and filling his Cabinet with men subject to congressional influence; the prerogative; President Tyler's influence on foreign relations; Tyler's early efforts to conciliate the anti-Clay Whigs; and his failure to develop any effective, organized partisan support of his administration either from Whigs or from his own Democratic associates.

There is current significance in the description of Tyler's defense of the executive responsibility for conducting investigations, and his comparison of the relative functions and results of these inquiries and of those conducted by Congress. The President wrote, "the personal reputations of persons connected with the investigation may well be better protected when the work is done quietly . . ." by the executive department Such inquiries must often be made in confidence lest "impertinence or malignity may seek . . . the means of incalculable and irremediable injury to innocent parties . . ." During this debate, more than a century ago, there was no attempt to forbid wholly either executive or congressional investigations. There was an emphasis upon the dual responsibility, both executive and congressional, for preserving some degree of secrecy while preventing the covering up of "corruption and incompetence."

The author has shown skill in his choice of emphasis within a period already "thoroughly examined." No new sources have been available to him and, judged by the very adequate footnotes, over 95 per cent of his materials are from previously printed works. A score of items are cited from the Tyler manuscripts in the Library of Congress. There is an adequate selected bibliography, and an index which the University of Nebraska Press should have insisted on having in a more complete form.

CHARLES M. THOMAS

The Air University

LEONARD D. WHITE. *The Jacksonians: A Study of Administrative History, 1829–1861.* Pp xii, 593. New York: The Macmillan Company, 1954. $8.00.

For altogether too many years, students of the American past ignored the administrative aspects of our government. In 1948, Mr. White, professor of Public Administration at the University of Chicago, published a volume titled *The Federalists.* This was followed, three years later, by *The Jeffersonians.* These two volumes provided, for the first time, a scholarly assessment of the changing and developing administration of our national government. With the publication of this present volume, continuing the study down to the outbreak of the war between the states, Professor White has provided a trilogy that traces the evolution of our system of government through its formative years.

A sampling of chapter titles will give some idea of the scope of this study: "The Presidency," "The President and the Administrative System," "The Struggle for Power," "The Control of Appointments," "The Treasury and Customs Administration," "Decline of the Post Office," "Theory and Practice of Rotation," "The Consequences of Rotation," "The Rise of Examinations," "The Personnel System," "Government and the Public Economy," "Democracy and Administration." Declaring that "the most important influence upon the administrative system during the years from Jackson to Lincoln" was the broadening of the franchise and the parallel growth of party machinery and democratic sentiment, the author follows the complexity of the governmental structure and concerns himself with the forces that were at work and the changes that were taking place. "In these years of turmoil and anxiety," he notes, "the administrative system described by President Tyler as 'the complex, but at the same time beautiful, machinery of our system of government,' went steadily on its way, carrying on the business of the American people as best it could."

The reader of this volume will be struck by the author's solid scholarship, his breadth of understanding, his delightful organization and style, and the hard core of common sense that preserves the balance of the study. The chapters will add to the understanding of the scholar as well as of the layman. In the twenty-five-page chapter on "The Theory and Practice of Rotation," for example, one finds not only a clear explanation of the pressures that resulted in the "spoils system" of Jackson's time, but a more unusual description of the ebbs and flows of public sentiment and of the way in which the successive political leaders reacted to popular pressures. The author's narrative is liberally sprinkled with quotations from both manuscript and contemporary periodical sources. It is this wealth of unusual source material that may appeal most to the general reader

No serious student of the first seventy years of our nation's history will ever wish to overlook these three volumes. To the student of politics, to the practical politician, to the good citizen who wishes to know how our government functions, in actual practice, this study of our developing administrative history will long remain of the first importance.

RALPH ADAMS BROWN
State University Teachers College
Cortland, N. Y.

LAWRENCE HENRY GIPSON. *The Coming of the Revolution, 1763–1775.* Pp. xiv, 287. New York: Harper and Brothers 1954. $5.00.

The Coming of the Revolution is the most recent volume in the New American Nation series edited by Professors Commager and Morris of Columbia. This book, let it be said at the outset, confirms the impression already made by Wallace Notestein's *The English People on the Eve of Colonization* and Arthur S. Link's *Woodrow Wilson and the Progressive Era:* that this venture will be, after all, a fit successor to the notable series of books produced a half-century ago under the guidance of Albert Bushnell Hart. Professor Gipson's magisterial narrative of the Revolutionary movement within the thirteen American colonies meets both the special needs of the editors and the high standards of the author—an achievement that is not, as we have learned from other books in other series, the easiest thing in the scholarly world to bring off successfully. Out of the massive rock of his knowledge and understanding of the British Empire in America, he has carved a gem of descriptive narration and reflective judgment. *The Coming of the Revolution* is "pure Gipson," that is to say, a book about early America that is documented with severity, written with clarity, and marked by a measured, one might almost say Franklinian, affection for the old Empire.

Were one to seek an argument with the author, it would not be with his final judgment on the causes of the Revolution —"it had its source fundamentally in the fact that America now embodied a mature and powerful English-speaking community with a mind of its own and a future that it considered peculiarly its own. British statesmen as a group were responsible for the breach, to the extent of their failure to realize that the old system of imperial control was no longer applicable to a society so highly cultivated, so extended, and so numerous"—but rather with the offhand manner in which he refutes all other and more restricted views of these causes and yet fails to make a strong and positive case for his own broad interpretation. It might even be argued that this book is a learned survey of the events and forces that did *not* lead to the American Revolution rather than of those that did. In the end, however, there is no mistaking Professor Gipson's opinion of the causes of the Revolution, an interpretation with which there are few historians now willing to disagree. The Revolution took place when and as it did because the American colonies in 1765 had achieved a society more open, an economy more fluid, a pattern of religion more tolerant, and a government more constitutional than anything Europeans would know for years or even generations to come. To tighten the bonds of empire on a people so free and mature, indeed so proudly conscious of their direct line of descent from the mother country, was to ask for and get a full-scale rebellion.

CLINTON ROSSITER

Cornell University

LINCOLN LORENZ. *The Admiral and the Empress: John Paul Jones and Catherine the Great.* Pp. 194. New York: Bookman Associates. 1954. $3.50.

This book treats what may be called the Russian episode of John Paul Jones's life, during which, having accepted a commission from Catherine II, he served in the Russian Navy, participated in the Second Russo-Turkish War (1787–92), became personally involved with his superiors, and finally took his inglorious departure from Russia.

The author, using material from his previously published biography of Jones and from other sources, has prepared a study of broader scope than that attempted by others—for example, Golder in his *John Paul Jones in Russia.*

Lorenz handles his subject with a passion that does credit to his heart and often gives life to his story, but it is a passion so flaming as to weaken credibility. John Paul Jones, we are told, was a wronged man. He was the only effective commander in the naval engagements against the Turks; therefore Potemkin was led, through jealousy, to mulct him of his laurels and his command. Catherine compounded the evil first by refusing Jones a hearing and then by being party to a charge of rape that was trumped up to justify the scurvy treatment he was receiving. All were against him: "Potemkin the barbarian, De Ligne the courtier, Alexiano the pirate, Mordwinoff the boor, Suvorof the madman, De Ribas the tool, Cobentzel the intriguer, and Nassau the ass in lion's skin—this rapacious pack . . . lurking and snarling at the heels of Jones" (p. 145).

Never, we are urged to believe, was so honorable and brave a man so badly treated. As the case is presented, one is convinced that Jones was unfairly treated, but not that he was as blameless and his opponents as blameworthy as the argument implies. Lorenz' excess of passion leads him to make statements that do not agree with the facts. His acceptance of Jones's version of the story as the unvarnished truth and his disregard of Russian sources weaken his case considerably.

The author, moreover, shows a tendency to inject the current cold war into his reading of eighteenth-century history, seeking to prove that Russia is, has been, and always will be a land of tricks and tyranny. Absence of maps, a paucity of dates, and a lack of documentation also detract from the book.

In short, the faults of this work are of such a nature that they can be only somewhat mitigated by the author's vivid writing or by the intrinsic appeal of a little-known period in the life of a hero.

SIDNEY HARCAVE

State University of New York

ANTHONY HARRIGAN (Ed.). *The Editor and the Republic, Papers and Addresses of William Watts Ball.* Pp. xxii, 209. Chapel Hill: The University of North Carolina Press, 1954. $5.00.

When William Watts Ball died in 1952 at the age of 83, South Carolina probably lost its outstanding newspaper editor of the present century. Ball served as editor of the Columbia *State* from 1913 to 1923, and the Charleston *News & Courier* from 1927 to 1951. He sandwiched a four-year stint as head of the journalism program at the University of South Carolina in between his two active editorships.

Mr. Harrigan, a strong admirer of Mr. Ball, has collected and edited in book form a series of documents prepared by Mr. Ball for presentation at meetings of a number of South Carolina organizations, particularly the state press association and the Kosmos Club, a Charleston group composed of business men and university professors. The seventeen papers were presented between 1911 and 1945.

Mr. Ball's interests, in terms of the subject matter of the collected papers, were cosmopolitan. He seemed equally at home in discussing "dangers" to freedom of the press, the "crisis" in Christianity, the "folly" of the 18th Amendment, Calhoun, the U. S. Constitution, the economic position of the Negro, and research in newspaper history.

When Mr. Ball's papers are examined with an eye to uncovering a central philosophy, there emerges a picture of an editor possessed of a conservatism which, while possibly sincere, seems hopelessly out-of-date. Mr. Harrigan states quite frankly that his subject "was a believer in the verities of the old Republic as it was in the days before 1860 when corruption in government was not prevalent."

Mr. Ball was an intense believer in the use of land to solve the problems of the day. He agreed with Chesterton that we must increase the proportion of people living according to ancient simplicity and then added "land is abundant for every man who loves freedom." This message was strongly emphasized by Mr. Ball whenever he discussed the status of the South Carolina Negro.

Mr. Ball was a staunch advocate of states rights and some of his preachments recall the debates in Congress prior to the outbreak of the Civil War. In a 1930 paper entitled "The Constitution Is Nullified," he suggested that the states adopt a parliamentary form of government with a new federal constitution the eventual aim, and after the advent of the New Deal he broached the idea of withdrawing all southern representatives from the Senate and House as an act of passive resistance.

It was Mr. Ball's good fortune to work for newspaper owners whose ideas must have coincided with his to a remarkable degree because he boasts of the editorial freedom he enjoyed. However, in "Of Chiefs and Staffers," Mr. Ball utters a mild confession when he says "I have not followed every impulse or seized the newspaper of which I am a trustee for my employer to express convictions opposed to his."

Credit must be given Mr. Harrigan and his publisher for placing the name of Mr. Ball before a public broader than his South Carolina following. Existing general histories of journalism do not mention his name. Now that the bright light of the printed word has been thrown upon it, inevitable assessments will follow. The conclusion seems likely that many of these will not view the subject with the kindness and sympathy shown by Mr. Harrigan.

Frederic E. Merwin

Rutgers University

Frederick Shaw. *The History of the New York City Legislature.* Pp. vi, 300. New York: Columbia University Press, 1954. $4.50.

The volume represents the most complete history we have yet had of a municipal legislature in the United States. As such, it is most useful for its painstaking and detailed analysis of the evolution of the New York City legislature from 1851 (when "with the bestowal of the first trolley franchise . . . the Board of Aldermen embarked on a career of spoliation"), through the story of the Proportional Representation-Reform Council of 1937–49, to the Council of the 1950's which, "given an able and public-spirited minority," could perhaps "play a useful, but highly limited role in the city government."

The author's perspective is predominantly that of the municipal reformers who for more than a hundred years have labored to improve the City's legislative institution, but he tells the story of their efforts and the results with considerable objectivity and with impressive evidence of industrious and thoroughgoing historical research. His fundamental discovery is a paradox: as the city legislature, responding to the tireless work of the reformers, has risen in the quality of its individual members and in its public reputation, it has steadily declined in power and function. Today the Council is neither corrupt nor important; its role in the government of the City is passive and almost wholly ritualistic.

The Board of Aldermen exercised its greatest powers during the years 1851–1888 when, as "an unbossed assemblage of conniving politicians," it made its own bargains with the franchise-seekers and exploited other opportunities for its members. It was Croker, beginning in 1888, who became the first party leader to boss rather than buy the aldermen. Thereafter, the legal powers of the Board were slowly whittled away by the reformers, while the party organization transformed the individual aldermen into work horses for the district leaders. When the municipal reformers, under the long reign of the La Guardia administration, were able to replace the Board of Aldermen with a Council elected by proportional representation, they chose first to improve the quality and representativeness of the membership of the body before they gave it any real power. There was pronounced success in this cautious first step, but the experiment while still in its first phase was interrupted by the repeal of PR in 1947. Thus the Council, as elected under the new system of single-member districts in 1949 and subsequently, has no significant function or power-role in the City goverment; the governing of the City is the task of the Board of Estimate, the Mayor, and the administrative agencies. The Council's assignment is to consent, not to decide.

The author relates this story in a dozen well organized chapters—some of them chronological, but most of them topical (for example, "The Alderman and his Bailiwick," "The Ideology of P.R.")—and a chapter of summary and conclusions As a historian, he emphasizes the ebb and flow of standards of morality and public ethics in and around the municipal legislative institution. As a political scientist, he might with profit have pursued with equal zeal the baffling enigma: what is the function of a legislative body in the governance of a great city?

WALLACE S. SAYRE
Columbia Universtiy

MILTON SYDNEY HEATH. *Constructive Liberalism: The Role of the State in Economic Development in Georgia to 1860.* Pp. xi, 448. Cambridge, Mass.: Harvard University Press, 1954. $7.50.

This fourth and last volume of a series on the relation of the states to economic development delivers the final coup de grâce to the formerly widespread notion that laissez-faire theory generally dominated state policies in the period from the Revolution to the Civil War. Previous studies of Massachusetts, Pennsylvania, and Missouri, prepared under the direction of the Social Science Research Council's Committee on Research in Economic History, all have led to similar conclusions. In no case did the widespread theory of a limited federal government have a corollary influence on the role of the states.

Professor Heath has produced in this volume an extensive economic history of Georgia prior to the Civil War. While attention is centered on the role of the state, that role is so great that it ramifies deeply into nearly every aspect of economic activity. Only in agriculture, it would seem, was there anything approaching laissez-faire—and even in that area the state's land policy and many of its promotional activities were of considerable import.

This volume differs from others in the series by reaching back into the colonial period. The author identifies five periods in which the currents of "constructive liberalism" were especially strong: under the colonial trustees, 1732–52; in the Revolutionary era, 1776–85; in the reaction against the Yazoo scandals, 1796–1819; in the railroad era, 1827–43; and in the administration of Governor Joseph E. Brown, beginning in 1857. The bulk of the book is devoted to the evolution of this program after the Revolution in the fields of land policy, banking, internal improvements, railways, corporations, educational and labor policies, and the role of the state as regulator of economic activity. While the device of the mixed public and private corporation was widely used, especially in banking and railroads, the state frequently resorted to state-owned enterprise in the promotion of economic development.

The book reflects thorough and painstaking research. Its well-documented findings demonstrate beyond question that virtually all political and economic groups in the state were willing to accept a large degree of state action in the economic field when they felt it contributed to the development of the state or to the advancement of their vital interests.

GEORGE B. TINDALL
Louisiana State University

DEAN R. CRESAP. *Party Politics in the Golden State.* Pp. xi, 126. Los Angeles: Haynes Foundation, 1954. $2.50 cloth; $2.00 paper.

In his *Party Politics in the Golden State,* Dean R. Cresap undertakes to provide a "systematic discussion of party organization in California." He begins, appropriately, with the legal regulation of parties and moves on to describe party bodies at county and state levels. Then follow brief chapters on the role of party in the Legislature, relations with national politics, nominations, campaigns, and party leadership.

A useful purpose is served in bringing together scattered information concerning statutory rules governing the parties, and in providing a general description of party bodies. When it comes to probing into or interpreting what goes on behind closed doors, Mr. Cresap appears to lack the length of acquaintance and depth of penetration in California politics to make him a sure and mature observer.

The study demonstrates the difficulty of explaining California politics in terms of party. Group politics determines the pattern of California politics far more than does party politics.

His handling of the nominating process is made unsatisfactory by the timing of the appearance of the book: evidently the results of the 1954 primary, which indicated that the worst of cross-filing was over, were not available; Victoria Schuck's full-scale study of the device was not yet published; he missed the great increase in Democratic clubs and councils during 1953–54 and their transformation of the pre-primary endorsement situation.

Although the author sustains his main thesis that a more responsible party system would produce better government, the work is marred by a number of defects. Coverage is too much limited to the 1950–51 period when he did field work. Excessive reliance is placed on northern California newspapers, even for events in Los Angeles. Many names are misspelled: Kenny not Kenney, Tenney not Tenny, Werdel not Wardel, and others. The careers of father and son, Frank C. Jordan and Frank M. Jordan, are merged into one. Jack Tenney's opponent for Congress in 1952 was certainly not "a Warren Republican." In addition to the $1,250 reported in 1950 as received from the Republican Senatorial Campaign Committee, Richard Nixon later acknowledged that his committee received $5,000 from the Committee through Henry Grunewald, yet the author fails to record anything beyond the file at Sacramento.

The usefulness of the volume further is diminished by the lack of an index.

DEAN E. MCHENRY

University of California
Los Angeles

EDWIN C. MCREYNOLDS. *Oklahoma: A History of the Sooner State.* Pp. xii, 461. Norman: University of Oklahoma Press, 1954. $4.95.

Professor McReynolds, a native Oklahoman, is well fitted by extensive personal acquaintance with the life and leaders of his state and by long teaching experience at the University of Oklahoma to undertake his stated task. He treats his subject in sober and conservative fashion. The first fifth of the book surveys the Spanish, French, and American explorations which passed more or less fleetingly through or near what is now the Sooner State between 1528 and 1832. Indian affairs, with much justification, receive twice this space. The remaining two-fifths is concerned with permanent white settlement, traced through a chronological sequence of state political administrations. There is a brief concluding chapter on Oklahoma culture.

The work follows closely the pattern set by Edward Everett Dale and Morris L. Wardell in their *History of Oklahoma,* published six years ago. Undoubtedly, it is a decided improvement over its precursor in format and illustration, though not in content. It brings the Oklahoma story smartly up to 1953; it is scrupulously accurate in details of workmanship; it makes a distinct effort to relate Oklahoma events to the major strands of national development. Nevertheless, there is so little here that is new either in factual material or in interpretation that one must ask why it was considered necessary to write the book at all.

It should be remembered that there are already eight scholarly histories of Oklahoma extant, three of them published within the last eight years. Professor McReynolds states his desire to give readers "a brief yet reasonably comprehensive account of the state's growth" (p. vii); the jacket declares that the author "has had no purpose other than the reader's full enjoyment of a unique and remarkable segment of U. S. history." On both counts, the book is disappointing. While sections on exploration and Indians are extensive, major themes in subsequent Oklahoma history are obscured by a forest of administrative and legal detail, or left out altogether. Thus, the development and role of the oil industry are scarcely mentioned, the cattle and wheat industries receive surprisingly brief treatment, and the ugly soil conservation problem is quite ignored. Often it seems that what is omitted contains greater reader interest, as well as more real significance, than what is discussed.

Admittedly, the writing of first-class state history is no easy task. Ever since nationalism triumphed over the doctrine of state supremacy not quite a century ago, historians who deal with state history have had to wrestle with a certain sense of inferiority. What to do? Should one seek aggressively to rehabilitate what is today generally regarded as a lost cause, or must he accept second-rate status with becoming meekness and deference? There are ways out of this dilemma. One of the most attractive is to build state history around socio-economic themes. When social history is generalized on a national basis, it tends to become platitudinous; but on the state and local level—seen from close up, as it were—it reveals great variety and vitality. As an exemplar, one may cite *Montana: High, Wide and Handsome,* by Joseph Kinsey Howard—a model closely paralleled by Angie Debo in *Oklahoma: Footloose and Fancy Free.*

A much more common approach is to side-step the issue altogether while distracting the reader with a deluge of local faces and facts, each of which represents a prospective buyer, as every small-town newspaperman knows. It is this technique which produced the justly condemned "mug book", state and county histories of the post-Civil War decades. Unfortunately, in spite of certain virtues, the volume here considered is much closer in spirit to that ancient form of state history than the present reviewer would prefer.

FREDERICK D. KERSHNER, JR.
University of Wisconsin

CLYDE E. JACOBS. *Law Writers and the Courts.* Pp. vii, 223. Berkeley: University of California Press, 1954. $3.50.

The publication in 1942 of Benjamin R. Twiss' *Lawyers and the Constitution* provided a fascinating and significant narrative of how lawyers and some publicists took laissez-faire to the Supreme Court of the United States, and Mr. Jacobs' volume, though not written with the verve and suave humor of Mr. Twiss's book, is in many respects a worthy companion to it. Mr. Jacobs instead of dealing with the arguments of leading practitioners confines his study to three influential publicists of the last third of the nineteenth century and their impact upon American constitutional law, state and federal. The three publicists whose influence is traced by citation or quotation in numerous state supreme court decisions and a smaller number of decisions of the Supreme Court of the United States are Thomas M. Cooley, Christopher G. Tiedeman, and John F. Dillon.

After a general introductory chapter in which he depicts the conflicts between conservative principles and democratic reforms Mr. Jacobs devotes two chapters to the origins, development, and application of freedom of contract as a substantive limitation on legislative power, two chapters to the rise and decline of the "public purpose" concept as a limitation on the taxing and spending powers, and a final chapter to an evaluation of the contributions of the three writers to laissez-faire and constitutional law. Of the three publicists considered the most important was Thomas M. Cooley not only because his *Constitutional Limitations* was the most frequently cited authority on due process of law from its publication in 1868 until about 1900, but also because he contributed mightily both to freedom of contract and the doctrine of public purpose; whereas Tiedeman's contributions were confined to freedom of contract and Dillon's to the concept of public purpose.

Following a brief biographical sketch and a general summary of the major ideas of each of the publicists the author proceeds to analyze the principal federal and state cases in which the ideas of the publicists played a part in the ultimate decision. In this respect, therefore, the volume is much more a general history of the judicial development of the doctrines of liberty of contract and public purpose than it is an analysis of the major writings of Cooley and his valiant cohorts who succeeded so wondrously in equating liberty with economic license. Although the state courts were the first to embrace the principle of freedom of contract, the Supreme Court of the United States was the last to abandon it. The concept of public purpose was avidly accepted by the state courts as a bar to the rising tide of paternalism, but was resisted in the federal courts where it met with only a limited acceptance and then like freedom of contract went into discard unhonored, unsung, and unmourned.

In a relatively short volume Mr. Jacobs has provided a valuable account of a very important phase of American constitutional history, particularly the development of substantive due process of law in the state courts. He has also added to the understanding of judicial decisions as a process of imitation and borrowing. The volume has a brief index, a table of cases, and a very useful bibliography. Unfortunately, the publishers have had recourse to the increasingly frequent and frustrating device of placing the footnotes at the end of the volume.

ROBERT J. HARRIS

Vanderbilt University

MAURICE J. GOLDBLOOM. *American Security and Freedom.* Pp. vii, 84. Boston: Beacon Press, 1954. $1.50.

This book states briefly the grounds for and the conclusions reached by Mr. Goldbloom on the appropriate relation of American security to the freedoms guaranteed in both federal and state constitutions. It concerns three areas where conflict in recent years has been most virulent—(1) federal, state, and local public and private employment; (2) general legislation respecting security; and (3) education. Mr. Goldbloom starts from the supposition that the United States is faced by a world totalitarian danger, Communism, against which it must plainly protect itself. But he means by "protect" the protection of civil liberties from destruction by Communism. Implicitly, he seems to mean that a totalitarian United States "protecting" itself against a totalitarian Communism would be devoid of any moral significance.

In the process of working out his recommendations, Mr. Goldbloom gives a history of civil liberties which seems to establish: (1) that legislatures—federal, state, and local—and the courts have imposed more and more restrictions upon civil liberties; and (2) the number of such restrictions has increased enormously since 1945 Mr. Goldbloom does not himself so generally estimate the history of civil liberties, but he does assess recent developments as seriously threatening the whole civil liberties structure. It is for this significant reason that he wrote the present work, and the *American Jewish Committee* supported the research on which it is based.

Mr. Goldbloom's conclusions may be summarized as follows. (1) The present security program, both in government and private industry, is a serious threat to all civil rights in the United States. It fails to provide objective standards for distinguishing between positions involving security risk and those which do not or between the various degrees of security risk. Even though he believes that no man ought to be legally guaranteed a job, he does not think a security program ought to endanger the livelihoods and reputations of dissidents, nonconformists, ex-Communists, or even Communists who do not occupy sensitive positions or engage in unlawful activities. (2) A security program need not grant all legal protections guaranteed criminals, but the maximum protection required ought to be guaranteed. (3) Nonsensitive positions ought to be removed from any security program. (4) Legislation should avoid punishing anyone for *beliefs*; punishment should be only for *acts*. Present legislation punishes persons for advocacy or belief, thus giving color to the Communist argument that social change is impossible without violence or the use of force. (5) No one who is a Communist should be permitted to teach at institutions below the college level On the college level, judgment should be made purely on grounds of professional competence and teaching standards. (6) Illegal techniques such as wire tapping and unwarranted seizure should not be used in the investigation of Communists—largely because they are unsuccessful. (7) A federal committee of reputable men is needed concerned with safeguarding civil liberties.

A book so full of practical suggestions deserves full-size analysis. Unfortunately, we must limit ourselves to three observations: (1) the concept of "security" needs deeper clarification before its relation to civil liberties can be appropriately determined; (2) the statement "no man has a right to a job" is one that today, in particular, needs careful analysis; (3) the restrictions upon guaranteed freedoms and upon the conditions which serve to guarantee these freedoms also deserve more careful investigation: for example, freedom to teach as a facet of freedom on speech.

RUBIN GOTESKY

University of Georgia

ECONOMICS AND INDUSTRY

JAMES W. PROTHRO. *Dollar Decade, Business Ideas in the 1920's.* Pp. x, 256. Baton Rouge: Louisiana State University Press, 1954. $4.75.

The author is at pains to justify his choice of principal officers of the National Association of Manufacturers and United States Chamber of Commerce to represent business notions on public questions in the burgeoning "New Economic Era." He was obliged to limit his spokesmen arbitrarily, but those he lit upon invite objections. Grant that the period was one of overconfidence, with pride unsuspicious to the fall, it is still true that the pronouncements of these gentlemen were extreme on the side of self-righteousness. The wide field of their colleagues' views doubtless contained some more boastful and untaught, but for consistent ebullience commend me to these super-trade association executives.

It is not only in the wisdom of hindsight that they appear as braggarts. To any but their immediate members—and, let us hope, to many of them—they were clowns. At the time, the deliverances of the typical ones were ludicrous by any standards of information and sense. This turns the book into wry comedy. Finding himself in such company, the author, without effort, lets the reader enjoy the contradiction of crying up business initiative while reposing faith in protective tariffs, or shrilling the rightful autonomy of the elite while calling for vigilante treatment of workers' unions. With such easy targets his shots lose their victory.

And yet, as Mr. Prothro reminds, these presumptuous fellows were put in their conspicuous posts and kept there. Maybe it is the dizzy prosperity years at which we are to laugh, and not at the persons who made presidential addresses. Others besides themselves thought happy days would last forever. The egotism, forgetting sectors of the economy chronically in trouble and certain premonitory dips in business activity, was uncomfortably national. The sorry spectacle of peoples humbled by World War I was matched by the height of self-esteem to which this country was raised. The "Dollar Decade" was an inevitable, though not a righteous feature of the whirligig of fortune. It had its redress when our heads were bloody and bowed both.

The lesson is for now and for the future. We may wipe off our smiles at the expense of the business grasshoppers who took no account of winter to come, and remember rather what they taught us. Perhaps it was that propaganda may not long pose as philosophy, that selfish dogma is reproved by the demands of democracy, and that America is but one in a family of nations. Since the business bigwigs of Mr. Prothro's review held forth thirty years ago, the professors have come to claim more of the public ear. Are we doing better, as the atomic age will estimate us?

BROADUS MITCHELL

Rutgers University

J. D. GLOVER. *The Attack on Big Business.* Pp. xvi, 375. Boston: Division of Research, Graduate School of Business Administration, Harvard University, 1954. $4.00.

Because ours is a civilization dominated by "big business," criticism of the latter, in the opinion of Professor Glover, is necessarily criticism of business enterprise in general, and also of the entire range of economic, political, and social institutions which have grown up along with it, as well as of the cultural and moral values which it embodies or sets at naught. "Industrial civilization *is* the civilization of 'big business.'" If the reader falls into the "category of 'men of business'" of any sort, "when it comes right down to it, the critics are talking about *you,* about all the things they associate with *you,* about *your* civilization" (pp. 206–207, italics in the original).

"Written primarily for use by thoughtful business leaders" (Foreword, p. vii) the book purports to be a summary of the attacks made on big business with the declared objective being "to understand, not to rebut." The summaries, however, are inadequate to the point of being pitiable distortions. The critics, ranging from the early days of the Robber Barons and the trust busters down through to the writers of the Temporary National Economics Committee monographs and the monumental reports of The Twentieth Century Fund, are found to be generally ignorant of the elementary facts of business and are obsessed with the need of building "a case" in general disregard of the facts. They are charged with believing that profits are the sole business motive (pp. 288, 317); with having an entirely mechanistic approach (p. 291); being occasionally downright simpletons (p. 292); being hopelessly biased and mentally incompetent (p. 296); being dominated by the stereotypes of "prescientific thinking" (p. 301); or with employing the Nazi technique of defamation, substituting "big business" for the Jews (p. 300), and so forth.

No proof is offered for the dictum that "big business" speaks for all business enterprise; that it can and must speak for trade unions, co-operatives, farmers' organizations, and the like—all of which are part of contemporary society—as well. No real summaries are given in any place of the masses of evidence in question, although in many instances the relevant data read by the critics here being excoriated runs into hundreds of volumes of detailed and (not infrequently) sworn testimony. Certain lengthy and painstaking reports, notably those of the LaFollette Committee and those relating to the National Recovery Administration, are passed over without mention.

In rebuttal—and most of the book is rebuttal despite disclaimers to the contrary—we are told that "big business has served us well." It does not need so much to reform its ways as to take "positive action" to clarify its position to itself and the public. This appears to sum in the injunction to big business leaders to resort to "*new,* different, broader, more responsible thinking" (p. 337) about themselves, and the manner in which they are discharging their duties and responsibilities to the general public. What the author has to say sounds very much like the medieval notion of "trusteeship." Would he have scholarship cease its critical role and become apologetics as well?

ROBERT A. BRADY
University of California
Berkeley

MARTIN V. MARSHALL. *Automatic Merchandising.* Pp. xi, 275. Boston: Division of Research, Graduate School of Business Administration, Harvard University, 1954. $3.50.

As the subtitle indicates, this little volume of 275 smaller than normal size pages is the result of "A Study of the Problems and Limitations of Vending." Obviously, it was not intended to present a case for or against this relatively new development of retailing defined by the author as "a method of selling goods which employs a vending machine to complete automatically a sales transaction upon the insertion of coins by the customer." It is this fairly objective treatment that especially recommends it to students of marketing.

In presenting the subject the author proceeded logically and systematically. A careful definition of terms in the first chapter is followed by a brief history of the development of vending from its origin through 1954, with major emphasis on its current status in volume, types of merchandise, and organizational structure comprised of the machine manufacturers, operators, location-owners, and merchandise suppliers In the next four chapters is given a rather clear and comprehensive picture of the functioning and problems of *established* vending machine operators with respect to the machines, locations, servicing, and operating results. The five chapters that follow deal with problems of new applications, especially by department stores, with emphasis on the unsuccessful experiments by Hudson's within the store and by Filene's in outside locations at air and bus terminals. The concluding chapter summarizes the major limitations to vending and its potentialities.

As personal selling cost tended to increase without an offsetting increase in productivity and problems and difficulties connected therewith multiplied, retailers have attempted, especially since the end of World War II, to resolve the situation by reducing or eliminating personal selling wherever possible. One such attempt is to be found in the several versions of so-called simplified selling variously adopted. Another attempt is the experimentation with automatic vending.

From this volume it is revealed that automatic vending is a relatively high-cost method of retailing; that retail gross margins on goods vended must be substantially higher than on the same goods sold through alternative methods; that vending increases the number of middlemen because the retailing functions are divided between operators and location-owners, respectively; and that the problems incident to vending, especially those arising from the machine limitations, are often much greater than those intended to be solved by substituting it for personal selling. Vending is obviously best used where no alternative is feasible, as a supplementary device, or as a substitute in special situations as on trains. Except where especially applicable, however, a substitution of vending for personal selling may be a case where the cure is worse than the disease. The special merit of this book, therefore, is in dealing with the subject in its proper perspective.

THEODORE N. BECKMAN
Ohio State University

The Nation Looks at Its Resources: Report of the Mid-Century Conference on Resources for the Future, Washington, D. C., December 2, 3, 4, 1953. Pp. 418. Washington, D. C.: Resources for the Future, 1954. $5.00.

This is a remarkably readable report on a conference of outstanding importance in its field. The original incentive for holding the conference and funds to support it came from The Ford Foundation; the conference was planned and directed by Resources for the Future, Inc., a new organization with a long-range program of research and education in this field. Focused on problems presented by the mounting pressure on natural resources, the conference had three major aims: to arouse interest in resource problems, to further understanding among the various interested groups, and to provide leads for further work by the sponsoring organization.

Working papers were prepared to guide discussion in the general and sectional meetings, but these papers do not constitute the body of this report. Rather the problems raised and some of the general conclusions are combined as introductions to the main divisions of the report, which consist in the main of expertly selected quotations from the discussions. The editors have effectively winnowed the chaff of free discussion from the grain, and have seen to it that a goodly number of the sixteen hundred persons present express their views.

The major themes were these: the increasing demands on the nation's land base; the best uses of rural land; water problems, ranging from competing uses to allocation of costs; domestic nonfuel minerals; energy resources; world resources from the American viewpoint; problems in resource research; patterns of co-operation, from grass roots to international levels; and public lands and our degree of dependence on foreign resources. This report is convincing evidence that the conference will abundantly fulfill the aims set for it. Yet some readers will be dissatisfied, no doubt, with the scope and balance of this survey of resource problems and their solutions. The discussions seem, for example, to have been overly optimsitic, and too much concerned with the technical and physical aspects. One looks in vain for general recognition that the crux of resource-management problems is frequently found in man himself rather than in nature; one notes a willingness to look to government for aid but not for controls of any sort; discovery, development, and more productive use of resources get ample attention, but resource renewal and maintenance receive relatively little; and ideals of good stewardship of natural resources are lost sight of, at times, in the urge to provide for greater and still greater production.

The volume rings with vigorous clashes of opinion. One finishes the report with a feeling of having sat in on a spirited conversation among informed, keenly interested men of diverse backgrounds, and with a sense of gratitude that an expertly prepared record of this lively give-and-take is available for study at one's leisure.

J. RUSSELL WHITAKER

Peabody College

CLARENCE B. RANDALL. *A Foreign Economic Policy for the United States.* Pp. vii, 83. Chicago, Ill.: University of Chicago Press, 1954. $1.95.

The author has stated vigorously and clearly the case for a more intelligent, soundly based, foreign economic policy for the United States. His business experience and his experience as Chairman of the President's Commission on Foreign Economic Policy have combined to give him an excellent grasp of the subject matter. His writing shows understanding of United States' needs, a perspective on the whole range of international economic problems facing the United States, and a sympathetic understanding of the problems confronting the other free world countries.

Mr. Randall's treatment of the subject is based on three principles: ". . . reliance upon private effort and intelligence called forth by proper incentives, the governing control of vigorous competition, and the registering of choices through the free market." He consistently and cogently applies these principles in testing the soundness of various aspects of our foreign economic policy.

Mr. Randall's style is clear and forceful. He pulls no punches No matter how controversial the subject may be, he applies his principles with impartial vigor. He refers to our Buy-American policy as a concealed subsidy to companies already strong and prosperous; to our agricultural policy as madness; and he says our shipping policy should be direct and aboveboard rather than disguised.

His approach to the tariff issue might be criticized as overcautious in contrast to his basic convictions He recognizes, however, that "the process is one of growth, not explosive change." He explains the need for an evolutionary approach to the problem as due to inadequate public understanding, and to the failure of the business community to place the national interest above self-interest.

The dominant plea in the book is for greater awareness of the critical importance of our foreign economic policy and the need for better public understanding of it. In his words: "the United States does bear an awesome responsibility even though she did not choose it, and the individual citizen can pay an awesome price if he and 160 million like him walk out on the problem and do not try to understand it."

Mr. Randall and his book illustrate the contribution that business statesmen can make to the formulation of sound national policies. His book and his example may well serve to stimulate the interest of other business leaders and result in other contributions from this source.

WILLIAM C. HAWKINS

Tufts College

ALBERT LAUTERBACH. *Man, Motives, and Money: Psychological Frontiers of Economics.* Pp. xiv, 366. Ithaca, N. Y.: Cornell University Press, 1954. $5 00

Wesley Mitchell used to say that economics is a science of human behavior.

Economists might therefore benefit by comparing their own lore with that of the psychologists. Albert Lauterbach has made a careful study of this borderline area. He sets out to answer three questions:

(1) To what extent does business behavior follow the rules of decision-making postulated by economists? (Answer. To a very limited extent.)

(2) Does economic instability prevent people from acting "economically"? (Answer. Often.)

(3) Does economic reform of any desirable kind presuppose a different type of human being from the one known in Western democracies? (Answer. No.)

These condensations of the author's questions and answers do slight justice to his careful qualifications and tentative conclusions, or to the course of reasoning by which he arrives at his judgments. Also they do not reveal the many interesting observations which he makes along the way.

Profit making, he asserts, is the chief incentive of small enterprises, but at least above a certain minimum it serves largely self assertion and the achievement of status, which can be found by other means as well. Large concerns need profit, too, but "desire for continuity, financial stability or expansion is more often influential than a striving for immediate and definite profit."

Current economic institutions are characterized by instability which interferes with the atmosphere of confidence required for full efficiency in production and distribution. Personal insecurity is favored by the incompatibility of religious and other prevalent moral codes with the experience of the individual in the economic world. "Whether an individual is basically conservative, reform-minded or indifferent depends on the degree of independence or conformity in relation to the prevailing ideology of his family life during childhood and to his cultural and group setting." It is the same human being who plays economic roles and non-economic ones. These and other observations will not be startling to thoughtful persons, but they are often too little regarded in the formal thinking of economists.

The book contains a useful appendix of supporting material, a full bibliography, and an index.

GEORGE SOULE

New York, N. Y.

The International Bank for Reconstruction and Development, 1946–1953. Pp. 273. Baltimore, Md.: Johns Hopkins Press for the International Bank for Reconstruction and Development, 1954. $4.00.

Two years ago the Senate Banking and Currency Committee set for itself the task of surveying the foreign economic and financial activities of the United States government. One of the fruits of the initiative was this report, initially prepared by the Staff of the Bank in response to the Committee's request for a general description of the Bank's activities. As a result, the specialist in international investment will find little in the book that is new. On the other hand, the superficial reader may find it difficult to extract from its pages the easy vignette he wants. But a broad band of readers between these extremes will find it rewarding reading.

The book is not a critical analysis of the Bank's operations; staff writers associated with an institution are in neither the position nor the state of mind to provide this sort of objectivity. Nevertheless, it does contain some fairly skillful explanations of the more contentious policies of the Bank. Some of the rationalizations are so adroitly introduced, in fact, that the reader may not be fully aware that alternative courses of action exist, let alone their justification.

The basic policy choice for the Bank, of course, is its approach to prospective borrowers. A continuous spectrum of alternative approaches exists, ranging from that of the most conservative institutional investor to that of a politically-oriented foreign aid administrator. The Bank has managed to avoid these extremes in the face of heavy pressures. Its major accomplishment lies in the fact that it has managed to develop a raison d'être over the eight years of its operating life which commands the respect not only of the bankers of Wall Street and Lombard Street, but also of the planners of Santiago and Addis Ababa. But one could wish for a more critical exposition of the rightness of the Bank's approach as compared with the alternatives.

Here and there, the staff labors overly hard to develop its defenses against real or fancied Congressional critics. The staff is at pains to point out, for instance, that the Bank's ties to the United Nations' governing organs give the latter no shadow of control. Though the Bank is a specialized international agency within the meaning of the United Nations charter, it is free to go its independent way.

More than once, too, the staff feels obliged to stress the fact that the Bank is altogether free of any philosophical bent toward statism; that it is an adjunct of private competitive enterprise, not a rival with such enterprise. In the year 1955, these seem old ghosts, well laid; but in earlier years they were issues which might have weakened the Bank's position with the Congress.

The most provocative chapter of the book comes close to being its shortest—that dealing with the Bank's incipient program of technical assistance. Force of circumstance has obliged the Bank to turn more and more of its attention to broad development programming in individual countries, and to the training of the countries' personnel. These are fields in which the complementarity of the Bank's activities with those of private investors is easy to discern. They are activities which will inevitably grow and which may yet represent the Bank's most valuable contribution to the process of private international investment.

RAYMOND VERNON

Milburn, N. J.

SOCIOLOGY AND EDUCATION

LYMAN BRYSON. *The Drive Toward Reason: In the Service of a Free People.* Pp. viii, 148. New York: Harper and Brothers, 1954. $2.50.

Lyman Bryson's *The Drive Toward Reason* discusses the role of the educator, and of adult education, in particular, in our modern society. The challenge we face today is one of dealing with the problem of what Arthur M. Schlesinger, Sr. has called the broad base of the pyramid of culture—the common man in a democracy, emerging gradually, shaping himself, and being shaped, by the impact of mass media of communication, into a new creature whose final form is yet to be determined. Can this new man learn to enlarge the area wherein he can "use reason instead of trusting to the customs of the past"? If so, will the change prove beneficial to him, and to the civilization which is evolved in the process? Mr. Bryson's answer to these questions is a decisive affirmative.

Our technological progress has led to the material success which can give man the leisure necessary to make freedom a possibility. If this progress, in creating a greater awareness of our problems, has made this seem a more dangerous world in which to live, we must recognize, on the positive side, that a spiritual progress and intellectual growth such as man has never known are also within our nearer grasp. In order to justify our faith in the ability of man to build a better future, we must realistically appraise the past as well as the present, and courageously work for a better way of life.

Perhaps the first step in this appraisal, in regard to adult education, is an understanding recognition of the vulgarity of the taste of the common man. There is no justification for the theory that standards are being lowered. Heretofore the people had little leisure or opportunity to express their desires; in the instances where they did, there is no indication that their taste was higher than that of the common man of today. The intellectual elite, far from condemning derisively, must realize that the large mass of the people have now, as in the past, different standards and needs from those of the intelligentsia. What is encouraging in the modern scene is that we live in a mobile society, and one in which ideas are important and subject to change. Modern man, then, unlike the peasant, who lived in the rigidity of a stratified class order, can move quickly and learn to grow. Bryson believes that the educator can make this intellectual growth possible; the intelligent leader must

". . . meet each one where he is and offer him a hand he can grasp."

DOROTHY RUDY

Westboro, Mass.

JACOBUS TEN BROEK, EDWARD N. BARNHART, and FLOYD W. MATSON. *Prejudice, War, and the Constitution*. Pp. ix, 408. Berkeley and Los Angeles: University of California Press, 1954. $5.00

Within a few months after the attack on Pearl Harbor our government, acting on the advice of military leaders, decided to remove from the West Coast all persons of Japanese ancestry. Ninety days after this decision was made more than 110,000 Japanese Americans—citizens and aliens treated alike—had been uprooted from their homes and placed under armed guard in detention camps. The majority remained in such camps throughout the war.

At the outset of the evacuation an interdisciplinary group of social scientists at the University of California began to study it. The book under review is the third major volume to appear by members of this group; and like the earlier volume, *The Spoilage* by Dorothy Swaine Thomas and Richard S. Nishimoto, 1946; and *The Salvage* by Dorothy Swaine Thomas with the assistance of Charles Kikuchi and James Sakoda, 1952, it is likely to stand as the definitive work in its area.

The book is divided into three complementary sections; each of which could stand alone as a monograph. Part I, Genesis, presents a detailed and well documented account of the development of anti-Orientalism in general and anti-Japanese prejudice in particular. The thesis of this section is that a century of anti-Orientalism produced "a rigidly stereotyped set of attitudes towards Orientals which centered on suspicion and distrust." The activation of this stereotype by the war crisis generated the public hostility necessary for the evacuation.

Part II, Exodus, contains a comprehensive history of the evacuation together with an acute analysis of the reasons for it. The balanced presentation impresses. The camps are pictured neither as Boy Scout jamborees nor as American Buchenwalds The same balance is evidenced when the question of responsibility is considered. The theory that it was a military necessity is effectively disproved. So also are the theories popular with liberal circles and students of minority group relations that the evacuation was due primarily to the influence of selfish pressure groups and self-seeking politicians. The exaggerations and outright fabrications by many writers who hold to these views are neatly exposed. Folly not knavery is the judgment here.

In Part III, Leviticus, the constitutional issues are considered. Basic here is the wartime relationship of civilians with their rights to the military with its obligation to wage war successfully. At stake here are major values in American life, for only the most sanguine can feel sure that these issues are not likely to arise again perhaps for a different and larger group of citizens. Professor ten Broek (who is primarily responsible for this section—Matson and Barnhart for sections I and II respectively) with deftness, logic, and a careful assessment of both the legal and social factors involved concludes that the evacuation and detention was a flagrant and unwarranted breach of constitutional rights: a violation compounded by the Supreme Court's support. "In this way did the United States Supreme Court strike a blow at the liberties of us all."

At a time when many scholars seem reluctant to own to any values, it is refreshing to encounter a book which openly espouses a whole series of values. Acceptance of the value orientation is not necessary to appreciate the factual record and thoughtful analysis of a unique chapter in American history.

DONALD P. KENT

University of Connecticut

ANDREW F. HENRY and JAMES F. SHORT, JR. *Suicide and Homicide: Some Economic, Sociological, and Psychological Aspects of Aggression*. Pp. 214. Glencoe, Ill.: Free Press, 1954. $4.00.

This study of suicide and homicide is divided into three parts: 1) Aggression, Frustration, and the Business Cycle; 2) Some Sociological Determinants of the Choice Between Suicide and Homicide;

and 3) Some Psychological Determinants of the Choice Between Suicide and Homicide.

The authors consider suicide and homicide in general to be forms of aggression, the former turned inward, the latter outward. In closing Part One, they say: "We started out with the problem of internalization of parental demands and expectations and the associated inhibition of outward expression of aggression. And we are ending our discussion with the problem of projection. . . . Let us restate our sociological and psychological bases of legitimacy of other-oriented aggression. Internalization of harsh parental demands and discipline produces a high 'psychological probability' of suicide and a low 'psychological probability' of homicide. . . The 'psychological' determination of the legitimacy of other-oriented aggression is a function of the degree to which childhood aggression threatens nurturance. Clearly this 'psychological' basis cannot in and of itself explain the persistent variations in the suicide and homicide rates at differing points in the social structure and the life cycle" (pp. 118–119).

As a way of accounting for "differences in rates of suicide and homicide at differing points in the social structure and the life cycle," the authors turn to the proposition that "legitimization of other-oriented aggression varies directly with the strength of external restraint over behavior of the adult" as a function of the "relational system and position in the status hierarchy."

The latter position is important because it saves the authors from too great a dependence upon the idea that degrees of external restraint upon the child which do or do not threaten nurturance are adequate to account for the inward or outward direction of aggressive responses.

It is possible that Henry and Short could profitably explore further the force exercised by cultural variations in patterns of response permitted by those who suffer from resentment. In the South, for example, the more favorably placed as well as those of lowly status are more given to crimes against persons than in non-Southern areas of the United States: a matter not of social structure but of codes of honor.

It is also difficult for some students to believe that all forms of suicide grow out of resentment against other persons turned inward. All suicides are the result of frustration, *but not necessarily of frustration by other persons.* Criminally aggressive responses in many instances may not be the result of frustration at all; may even be the mores of subcultural groups.

This capable and provocative treatment of suicide and homicide is a challenge to future research. It merits the attention of the serious student.

AUSTIN L. PORTERFIELD
Texas Christian University

CECIL G. SHEPS and EUGENE E. TAYLOR *Needed Research in Health and Medical Care: A Bio-Social Approach.* Pp. ix, 216. Chapel Hill: The University of North Carolina Press, 1954. $5.00.

Needed Research in Health and Medical Care is based on a seminar on the same topic held at the University of North Carolina in September 1952. The three-day session of forty-seven scientists from various biological and social disciplines produced 600 pages of transcript. The authors have not, however, presented this in the undigested form made possible by modern recording techniques. They have organized the fruit of these discussions into a contribution to interdisciplinary research.

Much of the discussion consisted apparently in mutual absorption of concepts and attitudes, and otherwise learning to communicate with one another. Of the five chapters, the first deals generally with the purpose of bio-social research, and the last is a summary of conclusions. "The Fields of Bio-Social Research" (Chapter II) are delineated as major categories defined by disciplines rather than a conceptualization of the health field from an interdisciplinary viewpoint. It appears significant that one of the categories of research presented is social epidemiology, which is admittedly a redundant term, although considered necessary. Problems of the social organization of bio-social research appear to be paramount. "Problems in Methodology" (Chapter III) are considered broadly in terms of the utility of cross-sectional versus longitudinal studies, for instance, as practiced in various projects, rather than an abstract consideration of the utility of various logico-statistical procedures. "Special Organizational Problems" (Chapter IV) deals with financing, location (university or health facility), recruitment of researchers, and the research and societal roles of the social scientist and physician. There are appendices concerning the organization of the seminar, and three selected pre-seminar statements, which were invited to serve in lieu of formal presentations at the meeting.

The problems mentioned illustrate the various positions from which bio-social research is viewed and from which the book will be considered. For those actively working in such research, the book is heartening because of the number of projects presented demonstrating that the problems are surmountable and the approach valuable, although what might be more useful to those in the field is a further interchange of results and some development of theory. The book will be of major value to those contemplating bio-social research in health. While it does not go far beyond the social problems involved in establishing interdisciplinary research, it covers these thoroughly By a frank presentation of the issues that must be faced, it should facilitate the necessary process of establishing rapport, and reduce the time required for discussions on projects. This would be a genuine aid to much needed research.

CHARLES A METZNER
University of Michigan

HERBERT PARNES. *Research on Labor Mobility: An Appraisal of Research Findings in the United States.* (Bulletin No. 65.) Pp. xi, 205. New York: Social Science Research Council, 1954. $1 75.

Research on Labor Mobility merits an important place on the shelves of social scientists, particularly those who have not done special work or have not had special interest in the field. The Social Science Research Council and the author have performed a valuable service in pulling together in summary form the concepts, methods, and findings of those who over the past two decades have done research on labor mobility.

There are six chapters. In the first the author develops a "framework" into which he proposes to fit the numerous individual studies. He makes it clear that short-run flexibility of the labor supply in relation to the allocation of the human resource in the 1930's and 1940's is his focus, rather than other possible foci, such as workers' goals and their ability to attain them, or the degree of fluidity in the class structure of society, or the effects of movement on workers and their families.

The five other chapters deal with the main conceptual and methodological problems involved in labor mobility research; the extent and character of labor mobility; the chief determinants of labor allocation; and suggestions for further research in the field.

In respect to the concept of labor mobility, useful distinctions are made among workers' ability to move; their willingness to move; and their actual movement. Content is also given to seven different sorts of movement: inter-firm; inter-occupation; inter-industry; inter-area; from employed to unemployed status, and vice versa; and movement into and out of the labor force. The validity and reliability of the sources of data on these items—including employees' case histories, employers' personnel records, and social insurance records on number and duration of jobs, wage rates and earnings, labor turnover, and other items—are considered.

To many readers the summaries of research findings on patterns of labor mobility and on the conditions—motivational and institutional—that determine these patterns will be of major interest. So also will the discussion of these determinants in relation to the assumptions and conclusions of economic theory on wage differentials and labor-resource allocation.

The author finds significant gaps and weaknesses in the empirical data available from the summarized studies. In order to test the universality of the conclusions reached by mobility research thus far, he suggests: (1) parallel studies in diverse labor market areas, among specific occupations, and under varying economic conditions; (2) periodic surveys of the same labor market under changing economic conditions; and (3) sampling investigations on a national scale. He emphasizes the need for greater refinement of concepts and methodology, and he calls for more appropriate empirical tests of hypotheses relating to the institutional determinants of mobility, including seniority clauses and private pension plans. (In our judgment, guaranteed annual wage plans, if they become a widespread reality, will provide an especially rich field for this sort of study.) He ends by stressing the need for limited investigations addressed to specific problems; thus, he questions that research designed for the study of motivational factors in labor market behavior would be equally appropriate for the study of institutional factors like unionism.

CARROLL R. DAUGHERTY
Northwestern University

WILLIAM HABER and others. *Manpower in the United States: Problems and Policies.* (Industrial Relations Research Association, Publication No. 11.) Pp. xi, 225. New York: Harper and Brothers, 1954. $3.00.

As the editors have pointed out in their succinct Introduction, "manpower policy in any formal sense dates roughly from World War I." When the wartime problems became eagerly relegated to near oblivion, the "imposition of national quota limitations on hitherto virtually unrestricted immigration," returned manpower problems to the nation's awareness. World War II and the partial return of a war economy with the "police action" in Korea, and the never-ending "cold war" have sharpened that awareness and made it constant.

In this short volume the editors have brought together essays by the following authors, well-known in the field and several of whom have collaborated: Daniel Bell, Rensis Libert and Stanley E. Seashore, Solomon Barkin, Glenn W. Miller, Louis Levine, Gladys L. Palmer and Ann A. Miller, Seymour L Wolfbein, Helen Wood, Irving B. Kravis, Gertrude Bancroft, Donald J. Bogue, Charles A. Meyers, Eli Ginzberg and James K. Anderson, J. Douglas Brown, Peter Heale, and Frederick H. Harbison and Albert Rees The book is composed of sixteen essays rich in a condensed handling of the manpower problems of the national crises of the past and of many of the statistically measurable trends in the industrial structure; and several have presented stimulating attempts to peep into the future structural changes and particularly into the future relations between technology and the human factor.

It is impossible because of space limitation to point out the specific contributions and aids to thought in the several essays, especially since not one of them is lacking in one or another of these qualities. It will, therefore, be far more revealing of the reviewer's own interest than of an objective weighing of relative merits when he states that he has been greatly impressed by Daniel Bell's "Work in the Life of an American" and by Solomon Barkin's "Job Redesign: A Technique for an Era of Full Employment." In the former, the author has passed in intriguing panorama the industrial age from the Industrial Revolution through scientific management to the automation of our own day, and in a way which ties together the inventive in the mechanical sense with the deeply human. Solomon Barkin has boldly posed the humanistic question as to why our inventive genius should not be given the novel directive of adapting our mechanisms to the worker and to do so in an integrated and comprehensive fashion over the full extent of our machinery-using industry.

SELIG PERLMAN
University of Wisconsin

PHILIP TAFT. *The Structure and Government of Labor Unions.* Pp. xix, 312. Cambridge, Mass.: Harvard University Press, 1954. $6.00.

Professor Taft's latest volume carries a rather broad title which attempts in this manner to give an appearance of unity to some very divergent material. If he had followed an older manner of titling, the result would have been something like: "Essays on the Structure and Government of

Labor Unions, Some Diversions on the Problem of Communism in Unions, and Some Thoughts on the Past and Future of American Unions." A glance at the chapter headings will elucidate this point. They are, in order of appearance (but in abbreviated form): union radicalism, opposition in union elections, dues and officer salaries, the unlicensed seafaring unions, the auto and steel worker unions, the future of the teamster union, and the present state of American unions.

The second, third, and fourth chapters have been the subject of previous works by Professor Taft, but not in such detailed and exhaustive form. In the chapter on opposition in union elections there is an excellent and cogent case made against viewing with alarm the long service records of the incumbents of the top offices. But it is doubtful if unions are as different in this respect, as Professor Taft believes, from many other organizations both business and fraternal. What might have been brought out by a closer study of the careers of the top officers is that the international president of today is the vice-president of yesterday, the secretary of the day before, the international representative, district council president, local union president, business agent, and so on down perhaps to the sergeant-at-arms. The top is ordinarily reached only after a long slow climb during which, as the data on salaries shows, the climber was frequently poorly paid when regard is given to the hours of work and the weight of responsibility. The opposition must work its way up in the same manner, or connect with someone already well up—there is no easy road on this score in any organization.

The problem of union discipline has never been an easy one, and it is likely to become more difficult in the future. Here, Professor Taft working from the union records differs with Professor Summers whose sources were the court cases. While there is more moderation in the former's opinions, there is still the problem of correcting even the infrequent abuses. As the unions have grown to encompass so many whose initial and continuing connection with unionism is no more than a contract requirement of membership, concepts of individual advantage, and organizational benefit or collective benefit clash more often. In this picture the Taft-Hartley Act limits union discipline except for nonpayment of dues. As a practical matter, therefore, the arm of government is thrown around the shoulder of the rule violator. It would be interesting to know in how many cases the "disciplined" member has simply refused to pay his fine and gone his own way.

The chapter on the auto and steel worker unions and that on the teamster union fit in, in a general way, with the sections discussed above. Why two unions (auto and steel), born in the same period, developed so differently is of interest. Professor Taft attributes the centralization and political quiet of the steel workers to its organization "from the top down." Here mature organizers and men of prestige in the labor movement came in at the outset and supplied the money and shaped the organization. The auto workers, on the other hand, did most of their own organization work, financed themselves, and were mighty suspicious of "outsiders." The teamster union is seen as presently in a state of flux —personality and technology are pushing for a larger role for the international, but it is too early to say they have triumphed, for the locals may yet have the final word.

The chapters on radicalism and the unlicensed seafarers stand away from the other material. Little here relates to either government or structure in the formal sense.

On the over-all view then, what we have are three cross-section chapters on structure and government, three unions which are studied from the aspect of government and structure, and added chapters on radicalism in general and in the seafarers unions. The data and discussion on government and structure provide valuable material for study and thought and much insight on the "insides" of unionism. It is this insight which puts Professor Taft's work much above the current plethora of "quantification" and raises hope that the American "Industrial Democracy" will someday be written.

HERBERT J. LAHNE

Washington, D. C.

KATE H. MUELLER *Educating Women for a Changing World.* Pp ix, 302. Minneapolis: University of Minnesota Press, 1954. $4.75.

American women in the past three decades have been assuming expanding responsibilities in the public and the business affairs of the nation leading to a perception of new dimensions for their lives. These dimensions are related not only to the realm of what they are doing, but to a perspective of the individual in a rapidly changing scene.

Professor Mueller from a rich background of teaching and counselling women students discusses the multiple roles of women and the implications for their education. With insight and keen wit, she analyzes the strains and tensions with which women are confronted as they fulfill their primary responsibilities in homemaking, in supervising the family, and as they seek an individualistic type of self-expression. The author reviews the available data on sex differences. She raises pertinent questions as to whether the current tendency to maximize the likenesses of men and women at the expense of minimizing their differences is wise. She makes the point that there must be curriculum provisions which will allow for the many differences in the life patterns and the social roles of men and women.

Professor Mueller indicates that most of the planning for women's education is concerned with the social concept of *the* American Woman patterned after the upper or upper-middle-class woman, a woman who represents only about 15 per cent of our population. The author with great clarity discusses the undercurrents of conflict in the attitudes of men toward the recent freedom of women. But the crux of the matter to Professor Mueller lies in the fact that our rapidly changing society no longer allows women self-fulfillment within the home. The mental health and social adjustment of more than half of the population are thereby affected. Simultaneously also are the national economy, the problem of manpower, and community welfare programs.

In outlining proposals for the education of women, Dr. Mueller approaches these functionally: education for earning, mating, homemaking, citizenship, politics, leisure. Her recommendations merit careful attention. There is a strong tendency, however, towards emphasizing the utilitarian purpose of education, although Mrs. Mueller does recommend that women's education should be centered around the liberal arts to give perspective, depth, and flexibility. Dr. Mueller has developed an interesting, well written, controversial, and significant analysis of women's current position and educational needs.

ALTHEA K. HOTTEL
University of Pennsylvania

PHILOSOPHY AND RELIGION

BARBARA WARD. *Faith and Freedom.* Pp. ix, 308. New York: W. W. Norton and Company, 1954. $3.75.

The Western world, so we are sometimes told, is at a disadvantage in its dealings with the Communist East because of its lack of unity of doctrine and purpose Though in certain respects this may be a very real disadvantage indeed, there is reason to rejoice in it rather than to lament it. It is a conspicuous weakness testifying to a hidden strength. Miss Ward, eloquent standard-bearer of Western civilization, is well aware of this paradox. She is deeply disturbed by a process of disintegration which threatens not only the unity but the very basis of our civilization, and she voices a grave warning: "the West will prove more vulnerable than any other society if it abandons the pursuit of visions and ideals for, more than any other community, it is the product not of geographical and racial forces but of the molding power of the spirit" (p. 263). But while summoning us to rally forces she does not indulge in a vain hankering after a unity of doctrine comparable to that of Marxist theory, and even the uncertainty about our fate, so different from the assuredness of Communist faith in the society of the future, she is willing to accept as "that unpredictability which belongs to the really creative activities of mankind" (p. 297).

The faith of the Western world is not to be circumscribed by the paragraphs of an ingenious system: its superabundant wealth is embodied in a more than millennial history. Accordingly Miss Ward's plea takes the form of a rapid historical survey, sketched with bold strokes and designed to throw into relief the basic ideas and tenets of Western culture conceived in the spirit of Christian humanism. As a historiographer she is a pupil of Toynbee's, and even the moral of her story is couched in terms borrowed from this master. She sees the human race rising above primitive and archaic society and a life under the sign of necessity to that consciousness of its dignity and freedom which is the noblest gift to man of civilized life and spiritual religion. And she sees the gain and promise of this development menaced by the oblivion to which modern man has consigned the very ideas to which he owes his emancipation. So he bids fair to relapse into a condition of unfreedom similar to his primitive condition but infinitely worse. We must "confront the fact that totalitarian government in its extremest forms has returned when the waning of religion left the altars of the soul empty and turned men back to the oldest gods of all —the idols of the tribe" (p. 265). In concluding the author holds out the saving hope of a renewal of the springs of faith and of a reunion of divided Christendom.

A worthy cause ably defended, the reader will feel. But he may also remember that Christ came to save souls rather than ailing civilizations, and that there is some danger for a Christian apologist in talking too much of civilizations; and for an analyst of civilizations to lean too heavily on theology

HELMUT KUHN

Munich, Germany

W. MACNEILE DIXON. *The Human Situation: The Gifford Lectures Delivered in the University of Glasgow, 1935–1937.* Pp. 448. New York: St. Martin's Press, 1954. $3.50.

In *The Human Situation,* Dixon writes beautiful prose full of poetic symbolism and with much quoting of poetry. The structure of his thought is somewhat submerged beneath a torrent of language and many contradictory statements.

His central thought can be summarized in terms of Being and Becoming. Our conscious life is spent in a world of ceaseless change and struggle, pleasure and pain, triumph and defeat, hope and despair, life and death. But this conscious life is only a small part of the total self or soul. The body restricts consciousness to this stormy bit of flickering awareness in the sea of Becoming The self or soul in its wholeness dwells in the realm of changeless perfection and this realm is called Being wherein all potenalities reside. The struggle and suffering of the world of Becoming are necessary to bring to consciousness in the sequence of time the infinite potentialities of Being.

The soul is eternal in the realm of changeless Being. At death it lapses into the realm of perfection and quietude and at birth comes forth again into the world of Becoming. Every individual, apparently, has many times been born into the world of Becoming and passed again into the realm of Being This alternation of periods of unconscious rest in Being with periods of conscious struggle in Becoming is what our natures need, according to the author.

Fine art gives a glimpse of pure Being in its changeless perfection, and so also does the changeless past when viewed in retrospect.

God is incomprehensible. Therefore the wise man will hold that idea of God which best serves to give him the "strongest incentive to living, and rouses his highest powers" (p. 276). This incentive to living and this rousing of men to their highest powers seem to be the ruling concern of the author in all his writing of the book. The world is one vast miracle and mystery so that we cannot know what is true and false in matters of major concern. Consequently we should hold to be true those affirmations which seem to provide this incentive.

In the thought of this reviewer this is dangerous doctrine. With such reasoning the Nazis and Communists have as good ground for their beliefs as we for ours, if their faiths give them as much incentive for living. Incentive for living according to Dixon is incentive to fight and struggle.

HENRY NELSON WIEMAN

Houston, Tex.

E. A. PARSONS. *The Alexandrian Library: Glory of the Hellenic World.* Pp. xii, 468. London: Clever-Hume Press; Houston, Tex.: Elsevier Press, 1952. $7.50.

This is the devoted work of an enthusiastic and wealthy friend and patron of the arts. It is a full-dress study of the famous library at Alexandria from the uncertain days of its first beginning by Demetrios of Phaleron, under the aegis of Ptolemy Soter, to its final destruction in the seventh century by the Arabs. Mr. Parsons has sought—and generally succeeded—to leave no possible phase of the story undescribed, no avenue unexplored. Every author, both ancient and modern, who has ever written anything on any related or contiguous theme is quoted or discussed. At times the result is somewhat akin to that nightmare of the teacher, the term paper, with its many: "Professor XYZ has weightily said: . . . ." But it is all done on the truly grand scale. All this does not tend to make the book conspicuously unified or nonrepetitious. Perhaps it does give it a taste of the encyclopaedic. There are a great number of lengthy asides. Some of them are of real interest and point, as the section detailing the other great libraries of antiquity. Others are of less consequence, as the lengthy but somewhat amateurish rehash of the Homeric Question. At any rate, the net result is a vast amount of material from which a mighty good book could be written. The whole work evidences clearly the hand of the zealous amateur rather than that of the trained professional scholar. The bibliography of twenty-nine pages is an amazing medley of pertinent and quite extraneous matter. In contrast the index —and a volume such as this needs a very full one—is totally inadequate, failing to list highly important matters in discussion in the preceding pages. A quite unsystematic way of citing authorities is to be found everywhere: Revelations II 13; 2 Macc. IV 33 are samples The casual reference (p. 40) to Titus and the bronze cherubim he found in the Temple of *Solomon* or the remark on p 183. "Jesus, as a child, was taught from manuscript rolls and verbal lessons of his native rabbins, the *Old Testament* from the Greek version, *The Septuagint*" will suggest that the reader will be wise to be on his guard if he is reading in a section outside his own domain. It would be ungracious to end on this sour note or to deny that in this labor of love—it must have cost a deal in time and money—much excellent material is to be gleaned. Certainly he has not erred by deliberately skimping on any part of the garment or its fringes.

MORTON S. ENSLIN

Moylan, Pa.

LIONEL KOCHAN. *Acton on History.* Pp. 184. London: André Deutsch; New York: British Book Centre, 1954. $3.00.

The Acton boom continues. Half-a-dozen studies on this enigmatic English nineteenth-century historian have appeared since the war. Mr. Lionel Kochan's brief and suggestive essay is one of the best of them. It is based, as are most of the recent crop of Acton studies, on the great mass of the historian's working notes now available in the library of Cambridge University. Mr. Kochan takes even more emphatically than did Miss Gertrude Himmelfarb (*Journal of Modern History,* December 1949) the position that where there is a conflict between Acton's published opinions on a given point and his opinions as reflected in these notes, it is the notes that are the more faithful reflection of his mind.

For Mr. Kochan, after distinguishing between the first period of Acton's life up to the Vatican Council of 1870, when he was a hopeful and articulate Catholic Liberal, and the second period, when after the defeat of the Liberals on the issue of Papal Infallibility, he retired to a life of contemplation and note-taking for the famous unwritten *History of Freedom,* goes on to make as a main point Acton's alienation from his age. Acton failed to publish not because he couldn't write—he had proved abundantly that he could—not because of any "perfectionism" masking some psychological block, nor for any of the many other reasons that have sometimes kept great scholars from publishing, but because, in a sense, he did not dare publish his real opinions. In fairness to Mr. Kochan's subtle analysis, it must be noted at once that he does not attribute to Acton any vulgar fear of public criticism, nor even of being simply misunderstood, but rather a very fundamental feeling that he would not be listened to, would not really get into the Victorian mind at all.

He had begun, Mr. Kochan finds, as a romantic historian with the characteristic romantic aim of reliving history, of identifying himself by an "inward vision" with the past. But he saw very early that this vision led to "historicism," to the doctrine that there are no standards by which to judge the historical process. Acton's inward vision was complemented—indeed opposed in an almost Hegelian dialectic—by the "external vision" of morality. The historian can and must judge, and his standards must be those of the moral absolutes, and especially the most basic of all absolutes. thou shalt not kill. The historian thus possesses the key that will resolve the horrible paradox of historicism. He can hold up to men the ideals so long, so constantly violated in the course of history, until someday men will see the error of their ways—and there will then be no more history. "The choice remains with man—'Knowledge of history means choice of ancestors.'"

Perhaps Mr. Kochan sharpens the conflicts within Acton's mind overmuch, but there can be no doubt that there is in Acton a very strong strain indeed of theological and metaphysical absolutism. The last quotation Mr. Kochan makes from the unpublished notes is revealing: "Liberalism essentially revolutionary. Facts must yield to ideas. Peaceably and patiently if possible. Violently, if not. . . ."

CRANE BRINTON

Harvard University

WILLIAM O. SHANAHAN *German Protestants Face the Social Question:* Volume I: *The Conservative Phase, 1815–1871.* Pp. xii, 434. Notre Dame, Ind.: University of Notre Dame Press, 1954. $6.75.

German Protestants Face the Social Question is a volume in the International Studies of the Committee on International Relations of the University of Notre Dame, to be completed in a study, covering 1871–1933. The entire research gives promise of being a penetrating analysis of how German Protsetantism passed from quietism to approval of Hitler, with many valuable insights and judgments added, including. the spiritual separation of Germany from Western Europe was finally accomplished by the influence of its idealistic philosophy between 1770 and 1840 (p. 11); "Hegel, in attempting to reconcile faith with reason, completed his task with such formidable thoroughness as to dispense entirely with theology and to end by identifying . . . Christianity with a world process entrusted solely to the state" (p. 19); *"Protestantism . . . had the special qualities necessary for coexistence with an omnipotent state . . ."* (p. 20); "Pietism began as the German phase of that interconfessional and undogmatic religious movement which included Quakerism and Methodism, and even embraced such Catholic manifestations as Jansenism and quietism" (p. 25).

The author sees the revolution of 1848 as bringing the Catholic masses to political power in Germany (p. 193) with the loss of interest of the urban and industrial groups in the Protestant clergy with their slogan of "rights from above" and "revolution from below." There were "no *unbaptized* proletarians." The great moment of 1848 was when Wichern made his eloquent plea for a "Volkskirche" in reply to the Communist Manifesto, becoming the first European churchman to foresee a deadly battle between Christianity and Communism for the soul of the proletariat" (p. 214).

But no united church resulted and the national proved of greater significance than the social question. Yet Prussia was painfully to discover that self-respect, civil freedom, human reason, law, and education were not the solution of the social problem. Not even the formal separation of the civil and ecclesiastical administration would do. Christianity would solve the basic *sin* by the conversion of individuals; socialism, the basic *evil* by universal economic remedies (p. 268).

Here are some conclusions: "conservatism can only succeed as a political principle when men have lost confidence in the future. . . . Prussian conservatism denied man's sovereignty over himself in insisting that he accept his fate in a traditional, authoritarian, and all-encompassing corporative regime . . . a dangerous illusion. . . . At a decisive moment, German Protestantism had cast its lot with the authoritarian and the agrarian traditions of European life, openly scorning the urban-industrial and liberal world that was coming into being. *German Protestants thereby risked the loss of the common man's allegiance,* for by committing itself to monarchical authority, Protestantism could not take the side of the people" (p. 301); "there was actually less factory and social legislation in Germany than in other nations" (p. 415); "the chief weakness [of the evangelical-social movement] was the neglect of practical measures" (p 413).

CONRAD H. MOEHLMAN
University of Southern California

CHARLES C. COLE, JR. *The Social Ideas of the Northern Evangelists, 1826–1860.* Pp. vii, 268. New York: Columbia University Press, 1954. $4.25.

The great influence of the clergy on American patterns of thought during the Middle Period needs to be understood if the crusade which culminated in the Civil War is to be placed in its historical perspective. Not only in the rural areas of a country predominately agricultural, but in the cities as well, the clergy were a major group in the formation of public opinion. Large numbers of them, especially those representing the evangelical sects in the North, spearheaded reform movements such as temperance, anti-slavery, the reformation of delinquent females, and the observance of the Sabbath.

Mr. Cole has attempted to describe and analyze the social ideas of these evangelists in the context of their period. The result is a study which is not always in focus. The problem of selecting representative evangelists for study is a task with which the author appears to have had some difficulty. The inclusion of Francis Wayland among the evangelists raises the question of how far one may stretch a definition. In any case, it should be pointed out that Mr. Cole seems to be aware of the pitfalls that face historians in attempting to isolate for development a series of ideas among a group of individuals.

Although the secondary literature dealing with the subjects covered by Mr. Cole in his monograph is extensive, he shows a preference for the original sources. Many excellent books have been written on the revivals, the refom movements, the anti-slavery movement, and the various religious denominations. One wishes that the author had indicated that he had made full use of these works. In addition, the book tends to be sketchy when discussing the social ideas of the evangelists and concentrates on some reforms while almost ignoring equally important ones. For a book of 242 pages of text, it would appear that 95 pages of background material before entering into the basic subject matter of the book is excessive. Perhaps the strongest impression left on the reviewer is that Mr. Cole has not developed fully enough the possibilities of his theme.

In conclusion, it should be emphasized that the author has gathered together the views of an important body of men and shown their influence in shaping the history of their times. As Mr. Cole makes clear, the evangelists were period pieces for which a post-Civil War America found little use.

ALBERT POST
Washington, D C.

COMMONWEALTH OF NATIONS

THOMAS JONES. *A Diary with Letters, 1931–1950.* Pp. xiv, 582. London: Geoffrey Cumberlege, Oxford University Press, 1954. $4.80.

Educator, author, and civil servant, Thomas Jones was the confidential advisor to four successive Prime Ministers of Great Britain. He worked closely with Lloyd George, Bonar Law, Stanley Baldwin, and Ramsay MacDonald; rarely and much less closely with Neville Chamberlain and

Winston Churchill. In 1916 he became a member of Lloyd George's War Cabinet Secretariat, and he continued to serve as a Cabinet Secretary until his retirement. When he retired from civil service in 1930 at the age of sixty, he began a new career, first as secretary and later as chairman of the Pilgrim Trust through which he administered funds to encourage fine arts and education. He travelled far, indeed, from the small Welsh mining town, where he was born in 1870, until he reached the high pinnacle of Cliveden where he enjoyed hospitality and friendship of Lord and Lady Astor and associated with the famous people who frequented their magnificent estate. Though he never regretted succumbing to the "plutocratic embrace" of Cliveden, he has continued to cherish "the hope of dying a reasonably poor man amidst the blessings of the Welfare State."

When Thomas Jones went to London to join the War Cabinet Secretariat, Sir Maurice Powicke urged him to help the historians of the future by keeping a diary. Jones began the diary at once and persisted in the strenuous discipline of daily record keeping until 1950, when he reached his eightieth birthday. The present volume is only one-sixth of his entire work; that portion which he wrote while in the Civil Service has been put on cold storage for his lifetime. When the whole diary is published, if the present part is indicative of the whole, it will establish the author as the twentieth century Greville.

Letters exchanged with many distinguished people of diverse interests interstice the diary. A substantial correspondence, relating to important questions of education, was carried on with Dr. Abraham Flexner, the first Director of the Institute of Advanced Study at Princeton, New Jersey. Many letters with Mrs. Shaw and other persons interested in literature throw light upon the character of George Bernard Shaw.

Taken together, the letters and the diary afford a box seat at the stage of history's stirring drama. From the vantage of No. 10 Downing Street, Cliveden, and Whitehall, one gains a clear sight of the dramatis personae of the early 1930's; and one can live again those dismal days of the economic depression, and see again the abdication of Edward VIII, and witness again the rise of Hitler and Mussolini while England slept. The author and other members of the "Cliveden set"—an epithet which he rejects—had a hand in shaping the policy of appeasement. This book reveals wonderfully the mentality of those who knew every Hitler move and yet could not bring themselves to rearm England adequately to resist him. By setting down these events fully and knowingly, Thomas Jones has undoubtedly helped the historians of the future to read the tragedy of his time.

R. G. COWHERD

Lehigh University

GEORGE HILTON JONES. *The Main Stream of Jacobitism.* Pp. x, 275. Cambridge, Mass.: Harvard University Press, 1954. $4.50.

James II was the Stuart king who succeeded to the thrones of England and Scotland on the death of his brother Charles II in 1685. A convinced and openly avowed Catholic, James attempted to Romanize the two countries over which he ruled. This course of action created a strong opposition party, which in 1688 invited the Dutch king, William, to invade Britain; and when William arrived in England James II sought safety in flight to France. Since the king had thus "abdicated," Parliament offered the vacant thrones of England and Scotland jointly to Dutch William and his wife Mary, James II's daughter. Thus the "Glorious Revolution" of 1688 was consummated.

Jacobitism is the name given to that movement which attempted to reinstate the Stuart House on the British throne Its headquarters were at St. Germain, in France, where the exiled James II set up his court with the full approval of King Louis XIV. The Jacobite movement aimed at persuading certain Catholic governments of Europe, particularly that of France, to finance and equip an invasion of Britain, with which the native pro-Stuart faction in England and Scotland would co-operate. For most of the time Jacobitism did not get beyond the stage of intrigues—in which, among others, Winston Churchill's famous ancestor, the Duke of Marlborough, was involved—and plots, for example, the 1696 plot to murder King William as he returned from a hunting trip But after the accession to the British throne of King George I of Hanover in 1714, the Jacobites succeeded in mounting two small-scale invasions of Britain—in 1715 on behalf of James II's son, the so-called "Old Pretender," and in 1745 on behalf of Charles Edward, his grandson, the "Young Pretender." Both of these invasions, though they were joined by native insurgents, proved abortive; and after the 1745 rebellion, British Jacobitism was so thoroughly crushed, particularly in Scotland, that it survived only as a matter of nostalgic sentiment.

The present volume traces the story of Jacobitism from its beginnings in 1688 until the failure of the rebellion of 1745. Its author, Dr. George Hilton Jones, is familiar with the secondary works which deal with this movement. But he has also made a careful study of the abundant source material—both the manuscript sources, such as the voluminous Stuart Papers, and those which have been printed, like the Calendar of State Papers. And he has produced a clear, objective, and authoritative account of the Jacobite Movement.

NORMAN VICTOR HOPE
Princeton Theological Seminary

KENNETH GRANT CRAWFORD *Canadian Municipal Government.* (Canadian Government Series, No. 6.) Pp. xii, 407. Toronto: University of Toronto Press, 1954. $7.50.

S. J. FRANKEL and R. C. PRATT. *Municipal Labour Relations in Canada.* Pp. v, 87. Montreal: Published jointly by The Canadian Federation of Mayors and Municipalities, and The Industrial Relations Centre, McGill University, 1954. $2 50.

Two new books on the subject of local government in Canada are another reminder of the revolutionary changes that have taken place in the Dominion since World War II. Canada is now the world's fourth largest industrial nation and its third largest trader. Her population has increased 22 per cent in ten years, and a country which was largely rural is now 57.3 per cent urban That such rapid change is making unprecedented financial and administrative demands upon municipal authorities can well be imagined.

Professor K. Grant Crawford brings to his study of this subject wide practical experience in city government in Ontario. As Director of the Institute of Local Government at Queens University, Kingston, he is also keenly interested in training better municipal officers. His book, therefore, is a combination of textbook and guide, which can be equally useful to student, town clerk, or voter. Especially, it has the great merits of clarity and readability.

After an Introduction devoted to the general problems confronting Canadian municipalities, Professor Crawford points out the complications produced by the lack of uniformity in the local institutions of the ten Provinces. In Newfoundland, for instance, special financial enticements have had to be offered to the citizens to get them to organize any form of local government. The methods of election, organization, powers and activities of municipal councils, their committees and officers are therefore described in detail. Almost one half the book is devoted to the ubiquitous problem of financing municipal services In Canada, as elsewhere, there is a growing tendency towards increased financial dependence of the municipalities upon the Provincial Governments, and a corresponding increase of supervision of local affairs by Provincial authorities Professor Crawford ardently believes that "if a democratic form of government is to survive at the national level, it can only do so if it is built upon a foundation of local autonomy." Not the least valuable portion of his book is this discussion of the importance of local self-government as the grass roots of democracy. His proposed solutions to the vexed problem of provincial-municipal relations are both sane and practical. Indeed this book has much to say to the citizen of any industrial state.

In contrast with Professor Crawford's broad analysis, S. J. Frankel and R. C. Pratt of McGill University have concentrated on one of the many problems confronting municipal authorities in the new

Canada, namely municipal labor unions. Approximately 40,000 public employees are already organized into union in Canada, and there is every indication that the movement to negotiate with their employers by means of collective bargaining will continue to grow.

The authors point out that a number of problems which do not have to be met by the ordinary industrial union have to be faced by these municipal workers. As has often been said, "one of the difficulties of public business is that it is public." The authors outline, rather than discuss, the various methods, techniques, and weaknesses of collective bargaining in the public services in Canada. The laws of the ten Provinces are reviewed and certain changes proposed. Special attention is given to the difficult question of compulsory arbitration of disputes in which essential public services such as that of firemen are involved. Unfortunately, as the authors admit, "this slim volume is the result of what can only be termed a preliminary survey of a large problem." It is therefore incomplete, and to that extent an unsatisfactory study of a very important subject.

MAURICE W. ARMSTRONG
Ursinus College

SLAVIC COUNTRIES

JOHN PLAMENATZ. *German Marxism and Russian Communism.* Pp. xxiii, 356. New York: Longmans, Green and Company, 1954. $4.25.

Despite the author's promise, the two parts of this work are not fully cemented together in a coherent whole which effectively illumines the relation of a theory and its development to the practice of a regime. The first part consists of an extraordinarily able examination of the teaching of Marx and Engels. Plamenatz, while emphasizing the creative importance of Marxist doctrine, as well as its overwhelming influence, does a beautiful job of revealing its philosophical and analytical defects, its unexamined assumptions, and the delusiveness, which was also on Marx' part self-delusion, of some of its major concepts and celebrated phrases. Likewise, Plamenatz, in my view correctly, has seen Lenin as a strategist and a theorist of strategy rather than as a creative philosopher, though he perhaps does less than full justice to Lenin as a thinker. He correctly sees, too, that, though Stalin was important as the manipulator and enforcer of the system, and in a sense was its popularizer, he has no genuine claim as a political and social thinker. Again, he is probably on sound ground when he insists that, had it been confined to the West alone, Marx' teaching, for all its intellectual weaknesses, would have proved a creative error. It was the perversion and misapplication of that error, joined to other, more sinister forces and doctrines in Russia, that constituted, and constitutes, the real evil.

Nevertheless, Plamenatz is equally right in stressing the value of new insights in Marx, especially his concept of ideology, and in emphasizing the nature of present Russian appeal to still agrarian and backward peoples. But I think he seriously exaggerates when he claims that it was Marx who taught us that the proper study of politics is not man, but institutions. If man and institutions are placed in opposition, the claim may be correct, but the teaching was disastrous. If Mr. Plamenatz means that man must be studied in the context of institutions, then any claim of basic originality on Marx' part is not warranted: witness a whole line of thinkers from Aristotle to Tocqueville.

Quite apart from these criticisms, however, the most serious defect of the book, each of whose parts has much fascination, wisdom, insight, and critical acumen, is that the very theoretical analysis of the first part is at a considerable distance from, and only loosely joined to, the often very fine institutional analysis of the second, with its emphasis on the relation of doctrines to practice, need, and purpose. The conjunction in the title states a connection; the actual work does not unite or unify the conjoined themes, whether by demonstrating interdependence or by making clear a deeper irreconcilability.

THOMAS I. COOK
Johns Hopkins University

W. W. KULSKI. *The Soviet Regime: Communism in Practice.* Pp. xiv, 807. Syracuse, N. Y: Syracuse University Press, 1954. $8.00.

Arnold J. Toynbee has argued that Communism is a "Jewish-Christian heresy," engendered by the failure of the West to fulfill its professed ideals. The stock-in-trade of Communist propagandists consists precisely of ironic contrasts between aspirations and practices in the democracies. This device in turn has evoked reams of Western anti-Communist tracts, contrasting Soviet ideals with Soviet realities. Professor Kulski of the Maxwell School at Syracuse, and formerly a member of the Polish government-in-exile, here offers us the most informative single contribution to this body of literature. He hopes that his book "will find its way to the young generation whose age warrants a search for a better world. They should avoid the pitfall of believing that a better world is being built in the Soviet Union." His volume is no ordinary indictment but a meticulously documented analysis based on Soviet sources, which he has mastered thoroughly and used honestly.

The result is a belated refutation of the Webbs' *Soviet Communism* (where ideals in documents were taken at face value) and a priceless work of reference, offering the most complete treatment yet attempted of Party and State, Citizenship, Elections, "Freedom," Courts, Family, Youth, Workers and Trade Unions, Peasants and Kholkhozes, and post-Stalinist developments. The portrait, albeit less dramatic, is as black as that drawn by Igor Gouzenko in *The Fall of a Titan.* Kulski, unlike Isaac Deutscher and Harrison Salisbury, sees little prospect of any "mellowing" of Soviet society. His very subtitle denies the Marxist postulate that Communism is a "far-off, divine event" toward which Soviet socialism is painfully groping and assumes that the ugly realities of the past and present are permanent. The picture is not "objective," for the author's motto is: see no good, hear no good, speak no good of the Union of Soviet Socialist Republics. Yet this work is a factual compendium of vast scope and power which, for years to come, will prove invaluable to all students of the Soviet way of life. It is, indeed, the type of indictment which the Soviet oligarchs themselves would take seriously if they were as wise as they pretend to be. But this, for the present, is too much to hope.

FREDERICK L. SCHUMAN

Williams College

TIMOTHY SOSNOVY. *The Housing Problem in the Soviet Union.* Edited by David I. Goldstein. Foreword by Gregory Grossman. Pp. xviii, 300. New York: Research Program on the U.S.S.R., 1954. $4.25.

Next to a sufficiency of food, probably nothing is more essential to a decent life on the material plane than adequate housing. One of the most damning indictments of the "workers' state" which has succeeded to the power of the Tsar of All the Russias is the fact that, as all non-Communist students of the subject seems to be agreed, housing conditions in Russia are probably no better now, and perhaps even worse, than they were before the Revolution. Workers of the world, take note.

The present study by Dr. Sosnovy bears all the marks of a definitive study of this important subject. Based on a wealth of Soviet sources and statistics, it demonstrates irrefutably the steady deterioration of the urban housing fund which Soviet planners have allowed to occur through inadequate appropriations and maintenance The natural result is that in 1950 an average of four persons lived in each room, with the actual figures varying sharply according to the social and economic status of the family. A private bathroom or kitchen is a rarity. As any one who has lived under such conditions can imagine, unsanitary conditions, quarrels, and fights are commonplace. And these are the conditions of the "free" section of the populace; those of the inmates of the forced labor camps are, of course, incomparably worse.

Projecting these discouraging trends into the future, we see no reason to think that, in view of the continuing and even increasing emphasis by the Soviet government on heavy industry and defense which the fall of Malenkov has rendered likely, the housing standards of the long-suffering Soviet people will do anything but decline further, or at best maintain their present unsatisfactory level.

It is no small achievement that this solid, even technical, study contrives to be not only comprehensible but interesting to the nonspecialist, or at least to this nonspecialist. This happy outcome is the result of careful organization and a thorough knowledge of the subject. In fact, Dr. Sosnovy's study could well serve as a model for other works of this kind.

HAROLD C. HINTON

Georgetown University

JOHANNES KAPS (Ed.). *The Tragedy of Silesia, 1945–1946: A Documentary Account with a Special Survey of the Archdiocese of Breslau.* Translated by Gladys H. Hartinger. Pp. 576. Munich: "Christ Unterwegs," 1952/53. No price.

Documents on the Expulsion of the Sudeten Germans. Compilation and Introduction by Wilhelm K. Turnwald. Translated by Gerda Johannsen Pp. xxix, 308 Munich: Association for the Protection of Sudeten German Interests, 1953. No price.

For some years various academic and political groups in Germany have been studying the mass expulsions of Germans from Central and Eastern Europe after World War II. Several volumes containing eyewitness accounts have already been published by the Göttinger Arbeitskreis, the Arbeitsgemeinschaft zur Wahrung Sudetendeutscher Interessen, and the German federal ministry for expellees The present two volumes are English translations respectively of *Die Tragödie Schlesiens 1945–46* (Munich, 1952/53) and *Dokumente zur Austreibung der Sudetendeutschen* (Munich, 1951). The merits and standards of the two works differ somewhat in accordance with the aims and purposes of the sponsoring organizations. The Silesia volume, compiled and published by a Catholic organization, is a collection of eyewitness reports by Silesian Catholics, many of them clergymen and members of religious orders. The accounts are the spontaneous, unpretentious, narrative statements by the participants in the events of that chaotic period. Thus they are not the product of systematic interviews, questionnaires, or opinion analysis. They stand on their own as forceful, moving human documents, classified merely according to region. They are remarkably free from expressions of self-pity and hatred although occasional passages, such as "Russian aggressor" (possibly an error in translation), "typically Polish (conditions)," and so forth reveal the naiveté of the narrator. On the other hand, both volumes include references to kindnesses shown to Germans by Russians, Poles, and Czechs. In this connection the reader is referred to a special compilation of such records of humanity published in 1950 by the Göttinger Arbeitskreis under the title, *Dokumente der Menschlichkeit,* which would serve as a counterdose to the almost unrelieved picture of brutalities described in the above two volumes. The *Documents on the Expulsion of the Sudeten Germans* edited by Wilhelm K. Turnwald and containing similarly arranged eyewitness accounts have more the character of a white book, not only because of the rather one-sided nature of the statements but also because of the editor's Preface. His aim is to show "the extensive participation of the Czech population in these misdeeds" (P. xxviii), and he demands the punishment of the guilty as "a condition for German-Czech co-existence." The documents in both volumes, however, tend to show that both in Czechoslovakia and Silesia it was the hastily organized "Revolutionary Guard" or militia, chiefly composed of young Communists and former inmates of Nazi concentration camps, that committed most of the inhuman acts described. The native Czechs and Poles often held aloof and condemned the behavior of these lawless elements As some of the narrators in the Silesian volume appropriately pointed out, this behavior was partly the reaction to the treatment which these militia men had experienced in Nazi Germany as prisoners or slave laborers. The reader of these documents also craves to know something about the political background of the narrators and one cannot escape the feeling that what has been left unsaid is often more significant than what has been printed. To insure maximum objectivity in future publications of this kind it might be advisable to set up an international board of editors. But in the final analysis one is forced to conclude that, no matter who committed the inhuman misdeeds described, or against whom they were directed, the fact that they could be committed at all constitutes a smashing indictment of our age and society. It brings to mind Zarathustra's statement, "Ye have made the way from worm to man, but much in you is yet worm." For while the individual testimony may be of doubtful value as a historical source, the sum of the thousands of statements already published and yet to appear eloquently corroborates the story of the Russian conquest, the takeover by the Poles and Czechs, and the expulsion measures.

CARL G. ANTHON
State University of Iowa

ALEX N. DRAGNICH. *Tito's Promised Land: Yugoslavia.* Pp. xii, 337. New Brunswick, N. J.: Rutgers University, 1954. $5.75.

American scholarship concerned with the contemporary interpretation of international relations is hardly ever interested in "what is," since the most popular approach is that which paints the current problem within the "black-white" framework. Thus, during World War II, Soviet Russia was extolled as a "true democracy," the historical United States-Russian relations were featured as always having been friendly, and Joseph Stalin was extolled as the best-meaning statesman in the world. Today, most articles and books tell us the "worst" about Russia and its rulers. A similar revisionism is now being written about Franco, whom we are treating in reverse; the former "bad boy" Franco is now being whitewashed. And we are just about due for a re-evaluation of Chiang Kai-Shek; President Syngman Rhee, whose "democratic" regime we saved; and the "dictator" Dr. Antonio de Oliveira Salazar of Portugal (whom we need nearly as much as Franco).

Dragnich's brilliant survey of the origins and evolution of Tito's regime belongs to the "black-white" school. It is a most devastating and effective demolishing job among those already undertaken by several other scholars whose leadership has now been assumed by this American-born Montenegran. Thoroughly documented and based on the impressions and interviews that Dragnich was able to gather during his stay in Yugoslavia as cultural attaché in the American Embassy in Belgrade, it presents facts which appear significant and important, telling the genesis of Tito's rule with clarity amounting to brutality. The handling of the theme is competent and comprehensive, and the arguments presented not without a certain eloquence arising from Dragnich's own keen feeling on the matter.

The reviewer cannot criticize Dragnich's workmanship on the basis of his documents or his personal impressions of Yugoslavia. But it is only fair to point out that the general impression left by Dragnich raised certain definite questions. It appears that from the very moment when Tito started to organize the Partisans he has been fighting everybody—Michailovich, nationalistic and political opponents, the Serbian as well as the Croat people (p. 29), and when starting on his career even arguing with Stalin (pp. 287 ff.). This might all be true, but how is it possible that Tito has survived and that his regime is still a going concern? What are the Yugoslav elements, besides the standard Communist techniques of domination, that have allowed Tito's survival among his people? And is not Yugoslavia the only country in the former Cominform allowing tourists and even advertising for them? In this respect, Dragnich offers us no answer whatsoever. In short, it is a very good academic yarn, despite the purplish tinge of the writing, with the Tito novel plot ingeniously treated and worked out. It is true that "in reality, of course, the Communist leaders' primary aim was to seize political power, a fact now readily admitted by them" (p. 22). But what other aim has any political movement ever had?

JOSEPH S. ROUCEK
University of Bridgeport

FREE EUROPE PRESS. The Research Staff. *Satellite Agriculture in Crisis: A Study* *of Land Policy in the Soviet Sphere.* Pp. 130. New York: Frederick A. Praeger, 1954. $2.50.

The productivity crisis in Soviet Agriculture and the 1953 "new agricultural course," designed to bring about greater farm output, have once more stimulated discussion regarding collectivized agriculture—including now the land policy in the entire Soviet sphere, coupled with its effects on Soviet power.

The authors present us with a concise study of the whys of the admitted shortcomings of the Soviet system of agriculture, especially in the satellite countries. There existed the concepts of revolution from above and by degrees which influenced every aspect of East European Communist policy. A bloody frontal assault on East European peasantry was to be avoided while gaining power. Collectivization was attempted in different fashions in each country. But peasantry expressed antagonism before the construction of the new society could be effected. This process is analyzed and supported with statistics for each country, including Yugoslavia.

The major turning point in the collectivization drive came when the mounting agricultural crisis in 1953 produced concessions: material incentives to peasant productivity, increased use of the open market, greater supply of consumers' goods, reduction of state delivery quotas, vigorous efforts to detach technicians from cities and send them to farms. These do *not* constitute fundamental policy changes. Yet they betray an inner anachronism: Soviet collectivization has been primarily designed to *redistribute* agricultural produce, rather than to *increase* it; to supply the urban group to which the Communists attached themselves, rather than to fill the needs of the peasantry or of the land; to effect industrialization in which the peasant would absorb the major shock. But the bedrock economic needs of an expanding industrial society call for ever increasing agricultural productivity, notoriously low on collective farms. Implicitly only free peasants will produce sufficiently and efficiently. Thus the authors contend that the present modus vivendi between the pleasantry and Communist regimes is a precarious and unstable truce of antagonistic social forces.

But they point also realistically to the changing character of Communism itself The 1928 Stalinist elaboration of the intimate connection between Communist agricultural policy and the demands of construction of a totalitarian industrial economy may never be such a decisive issue for the satellite countries. The Communist "solution" to the land problem of Eastern Europe is no real solution at all; total collectivization may not be economically needed. In the meantime peasants and their traditions persist. One may expect very interesting developments which merit continued, closest scrutiny, like this study provides.

ERNEST F. WINTER

Iona College

WESTERN CONTINENTAL EUROPE

PHILIP WILLIAMS. *Politics in Post-War France.* Pp. xiv, 500. New York: Longmans, Green, and Company, 1954. $7.00.

The author, lecturer in Modern History at Oxford University, faces the choice of following British academic practice of complete political detachment, or that of French writers who, despite state control of the universities, are "less concerned to avoid . . . taking sides." Conceding "there is much to be said for both approaches," but "nothing for professing one and practicing the other," he holds bias dangerous "only when concealed or unconscious." Finding it neither possible nor desirable to "avoid acquiring preferences and prejudices," he writes, "as supporter of the moderate wing of the Labour Party."

The book covers the years of the Fourth Republic, 1947–1953, on the background of the Third Republic, 1875–1947, the period with a constitution held to be fitting a monarchical as well as a republican regime.

Within four overhead parts—Background, Parties, Constitution, Political System—there are twenty-four specialized chapters: "Basis of French Politics"; "War and Aftermath, 1940–1947"; "Search for a Majority, 1947–1953";—"Communist

Party"; "Socialist Party"; *"Mouvement Républicain Populaire"*; "Radical Party"; "Conservative Groups"; *"Rassemblement du Peuple Français"*; "Minor Parties";—"Constitutional Problem"; "Presidency and Premiership"; "National Assembly"; "Assembly and Government"; "Committee System"; "Budget"; "Council of the Republic"; "Other Constitutional Organs";—"Electoral Laws"; "Pressure Groups"; "Parties and Elections"; "Parties and Government"; "Conclusion"

Behind sober titles of chapters, diagrams, maps, appendices, the author develops dynamic themes and scenes of a sophisticated, ruthless show—somber, comic, tragic, never dull; but sometimes highly detrimental to the commonweal and every Frenchman's vital concern. Stress is laid on the hectic parliamentary and governmental behavior pattern conditioned by a surging multitude of parties, large, small, and in between, whirling about in ever changing combinations motivated by agricultural, industrial, political, social, religious, and colonial involvements. The scenery inevitably bares the individual Frenchman's yearning for, or fear of, the strong man, real or imaginary.

While foreign critics may take a dim view of France's future—not so the author. French democracy, he admits, faces more immediate external and internal dangers than Britain and the United States. Despite "superficial contempt for politics" French voters go to the polls "in proportion . . . far higher than their counterparts in the United States." Instability is not as dangerous as it seems. Recurrent *"crises"* appear "reshuffles," bringing new blood, and permitting the old to change direction, thus providing "the means by which solutions are found to the more intractable problems of policy." For the peace of the West, may the author be proved correct!

JOHANNES MATTERN

Johns Hopkins University

VAL R. LORWIN. *The French Labor Movement.* Pp. xiii, 346. Cambridge, Mass.: Harvard University Press, 1954. $6.00.

This study of the French labor movement is presented by a careful student who has a fundamental belief in the value to modern society of organized labor. He has an abiding faith, it would seem, in the ability of free peoples to work out a way of life for themselves. He sees the slowness of the trek along the path to social stability in France as unfortunate, but necessary. And he puts the story of French industrial relations into its proper international place.

He does all of this as a social scientist with a research report to make, leaving his conclusions to find their place at the end of the study where the authority of the analysis will give them significance.

The student of industrial relations who wants to compare American labor movements with those in France with a view to seeing why the French workers have not mobilized their strength against Communism as have their American brothers will find this study rewarding. The fact that the pro-Communist *Confédération Générale du Travail* is the largest and best disciplined labor organization in France does not seem to mean that Communism has been gaining effective strength in that country. The CGT has split and united and split and united and split again on the Communist question; but even now it is not led by Communists alone and is not synonymous with the Communist party. Neither is the *Force Ouvrière* controlled by the Socialist Party, or the Catholic *Confédération Française des Travailleurs Chrétiens* by the Catholic *Mouvement Républicain Populaire.* This seems to be true despite the fact that the union movement has achieved more strength in France through legislation than through collective bargaining.

The author thinks that the CGT works against the recovery of a democratic France, and that the free unions have to maintain what is in fact a negative fight against the Communist CGT, the shortsightedness of the employers and the "immobilism" of the government. He says that the workers' hopes have been so often frustrated by wars on French soil, in the Far East, and Africa that they are not accompanied by the faith that collective action can win much permanent stability for labor. Working men have a weakened confidence in their nation's political and industrial leadership; which fact, when coupled with a long history of the dependence upon short-term, ill-financed, and ineffectual strikes as their principal means of action, leaves them passive.

Professor Lorwin gives a very satisfactory analysis of the structure and process of the labor movement in France with emphasis on the years since 1946. The efforts at collective bargaining, more unsuccessful than we have sometimes heard, the success in gaining social security, the organization of local plant unions, of industrial unions, and national federations all receive good treatment. He notes the rejection of the principle of compulsory arbitration in labor disputes and the substitution for it of compulsory conciliation. But there are shortcomings in any compulsory action in France, even in the practice of requisitioning of workers by the government as a means to break strikes.

The author's conclusion seems to be that the long tradition and special character of labor struggles in France are in themselves the chief blocks to the solution of current issues. He leaves it to the employers, to the government, and to the labor organizations to overcome their own past.

W. HENRY COOKE

Claremont Graduate School

LORD RUSSELL OF LIVERPOOL. *The Scourge of the Swastika.* Pp. xii, 259. New York· Philosophical Library, 1954. $4.50.

This "Short History of Nazi War Crimes" is a compact documentary of the unspeakable barbarity and depravity of which men are capable and which happened but a few years back in civilized Europe, where—on the lowest computation—12 million men, women, and children were done to death; not in battle, not in passion, but in the cold, calculated, deliberate attempt to destroy. The book is intended to "provide the ordinary reader with a truthful and accurate account," and the author, a distinguished member of the British bar, is well equipped to present it, for he served as a Deputy Judge Advocate General, British Army of the Rhine, at the war crime trials in the British zone of occupation.

This is a completely unemotional, almost irritatingly commentless presentation of the basic records of monstrous murder and cruelty that still stagger the imagination and depress all optimism in the decency of man. Lord Russell seems to carry no personal grudge against the Germans, but he does feel that we should not too eagerly nor too soon forget the hideous horror of Belsen, Buchenwald, and Dachau, where almost three million prisoners were butchered in Auschwitz alone, with 10,000 people vanishing in the gas chambers per day As a matter of fact, so strong does he feel about it that he refused to drop publication of this book even if it did result in his enforced resignation last August as Assistant Judge Advocate General in London. Perhaps the many books of apologia in behalf of the Nazis, which have recently appeared, have further irked his conscience to make these records known. There are sixteen frightening photographs, superfluous and yet necessary perhaps for those who still believe otherwise. The Nazis kept punctilious records—and while the author had access to them, he was wise not to try to encompass the entire sordid chapter, but offer just enough to make it a most damaging entry into the ledger of contemporary civilization. And it will take more than the expediency of the day, verbose politesse, and a favorable trade balance to atone for this so hurriedly evaporated genocide.

BORIS ERICH NELSON

Hampton Institute

ALFRED GROSSER and others. *Administration et politique en Allemagne occidentale.* Pp. xxi, 247. Paris: Librairie Armand Colin, 1954. No price.

This is volume fifty-seven of the *Cahiers de la Fondation Nationale des Sciences Politiques* and the first publication of the German section of the *Centre d'Études des Relations Internationales,* organized in 1952 as part of the *Fondation.* It is a highly selective compendium. If the nine chapters, written by seven French and German contributors, have anything in common, it is the theme of federal-state and municipal relations under the Basic Law of 1949. Several chapters, however, stress functional and operational aspects of state or municipal administration with only casual reference to the federal framework while others, particularly the one on Lower Saxony, are almost exclusively devoted to the discussion of local government.

For the American student of German affairs, this volume contains much that is useful and new. It provides an insight into the practical aspects and real consequences of federalism in the second Republic. It points up some of the problems and difficulties arising from the operation of a state system, that is partly brand new, components of which are but artificial creations, lacking a raison d'être in the all-German frame of things, and hence is partly unreal, ephemeral, and transitory.

Second, the chapter on Lower Saxony and to some extent the introductory chapter on the first session of the Bundestag give a vivid picture of politics in the Federal Republic. In particular, the chapter on Lower Saxony unravels for the American reader the intricacies of coalition politics at the state and federal levels. It also sheds new light on the problem of correlating the activities of a centrally directed party organization, such as that of the *Sozialdemokratische Partei Deutschlands,* with the conflicting and divergent requirements of local politics under a federal system. The example of Lower Saxony shows that the conflict between the party-liners and their comrades in high state offices can at times have rather amusing consequences.

Third, the American reader is provided with an insight into the juridical, structural, and functional problems of state and municipal administration in the new Germany. In the chapters dealing with state administrations, the treatment is rather sketchy and usually focussed on only one particular aspect or problem such as the role and function of the civil service. But in Part III, devoted to local self-government in a federal state, the coverage is more complete. Here are close-ups of Trier, Düsseldorf, Göttingen, and Heiligenhof (Holstein), discussions of the concept of *Selbstverwaltung,* its constitutional basis under the Basic Law, and a fairly exhaustive treatment of administrative, legal, and political problems encountered in these self-governing municipalities

Appended is an annotated bibliography on the Basic Law, the constitutional aspects of unification, and federal-state relations.

HENRY L. BRETTON
University of Michigan

OTHER COUNTRIES

W. W. ROSTOW and others. *The Prospect for Communist China.* Pp. xx, 379. New York: Published jointly by the Technology Press of Massachusetts Institute of Technology, and John Wiley and Sons, 1954. $5.00.

This superb book should be read by every one concerned with United States foreign policy or with Far Eastern affairs. Like its predecessor, *The Dynamics of Soviet Society,* it is the work of a team, it is the summary of a great deal of specialized material, it is analytic rather than interpretive, and it affords open American scholarship a glimpse into the workings of that formidable rival of traditional academic work, the new and mysterious world of classified scholarship.

Studies like this have been prepared for some years in the old Research and Analysis Branch of the Office of Strategic Services, in the Office of Intelligence Research of the State Department, and in many other federal agencies. The simplification and collectivization of scholarship by characteristically American methods of teamwork is a phenomenon affecting the line of every scholar and man of affairs in this country. It can be said that this volume and its Soviet-area counterpart would be important landmarks in the history of American scholarship, whatever the subject matter. The fact that each deals with an extraordinarily sensitive and crisis-fraught area of American foreign policy and strategic position makes the two books all the more important.

The China volume does a great deal to dispel the myth of "the Far Eastern expert." The authors of this volume have consulted Far Eastern experts very widely, all the way from people whom Senator McCarthy admires to others whom the Senator abhors. They have demonstrated that it is possible to reach intelligent conclusions concerning what is happening in China without going into the elaborate and often unnecessary masquerade of esoteric wisdom which has so often and lamentably been regarded as a minimum requirement for serious Far Eastern scholarship.

The presentation is a balanced and extremely sensible composite of the recent past and the immediate present A first part provides an extremely succinct and fair-minded summary of what happened in China between 1840 and 1949. The second part describes the evolution of Communist policy in the five critical years of taking and consolidating power, 1949 to 1954. The four remaining parts deal respectively with the Chinese Communist Government and the people under its control, with Sino-Soviet relations, with the economic structure and current economic problems, and with the prospects for Communist China. Ideological problems are treated skimpily. The conclusions reached are as sensible and modest as the body of the book. The authors reach the final conclusion that the destiny of China "rests substantially with the peoples of the Free World and their governments" (p. 314).

It is important that men new to the China field should have been able to put together so much sheer fact and to cement their conclusions with an impressive bibliographical apparatus. For specialists to have done this would have been remarkable. For outsiders to come into the Far Eastern field and do it is nothing short of miraculous. A performance such as this means, at least in part, that the American people have the skills which they need to follow a world of moving targets.

Far Eastern experts will find minor points with which to argue. The general reader will be satisfied with a panorama of China under Communism and will hope that the kind of disciplined teamwork evidenced by the production of this volume will continue to serve the public as well as the sensitive or strategic agencies of the American Government.

Paul M. A. Linebarger

School of Advanced International
Studies of the Johns Hopkins
University

E-tu Zen Sun. *Chinese Railways and British Interests 1898–1911.* Pp viii, 230. New York: King's Crown Press, Columbia University, 1954. $4.00

This is a reliable and restrained account of railway projects and railway politics in China from the battle of concessions in 1898 to the Revolution of 1911 with special attention to British diplomacy and British finance. In contrast with the violent language of current discussion of such matters Mrs. Sun's account seems positively gentle. But the facts are set forth and the story cannot be called a cheerful one.

The development in China throughout the period was toward domestic financing and unification, but domestic financing failed and unification brought out opposition to the Manchu court and culminated in revolution.

The development on the British side was from independent contracts on the part of British corporations to co-operation with others and finally to the four-power consortium which entered into the Hukuang loan agreement of 1911. The culmination was in the sterile political manoeuvering of the Chinchow-Aigun proposal and the Knox neutralization plan.

Mrs. Sun summarizes in her concluding chapter the factors in the failure of more effective railway development in China before 1911. One of these was the growing international political tension, the cold war, of the period. The scene, observed from today, was one of Great Power irresponsibility and American immaturity Another factor was the divided Manchu-Chinese government of China and the rising anti-Manchu temper of the Chinese.

Special attention may be directed to a double factor which is clearly set forth in this study, and which might have been more fully developed. It is the scarceness of capital in China and the efforts of the Chinese to mobilize what capital there was.

In western comments of the time the attempts to finance and build railways on the part of provincial groups tend to be set down as local agitation or to be given more dignity as rising Chinese nationalism.

Mrs. Sun uses the terms "gentry-merchant," "gentry capitalist," "the learned and moneyed gentry" to describe these Chinese groups. That they did not have the means to finance extensive railway development is understandable, though it was not always understood by their own officials. What is more difficult to explain is the fact that they seem always to have been associated with the province and not to have thought of railways for the region or the country. Mrs. Sun points out that these gentry-merchants were wealthier and more numerous in some provinces than in others, that they were more independent of the officials in some provinces than in others She has other things to say that should be pondered by those who sharply contrast gentry and merchant in traditional China. Gentry-capitalists *did* build the Shanghai-Hangchow railway which crossed a provincial boundary. If, in general, the gentry-merchants had not been so provincial, China might have mobilized more effectively what capital she had.

Mrs. Sun did well what she set out to do. When this has been said she should be urged to write more fully on the "learned and moneyed gentry" of the time.

CHARLES F. REMER

University of Michigan

WILLIAM W. LOCKWOOD. *The Economic Development of Japan, Growth and Structural Change, 1868–1938.* Pp. xiv, 603. Princeton, N. J.: Princeton University Press, 1954. $10 00.

Rarely is a reviewer asked to comment on a book like this, for which the scholarship has been so prodigious and the resulting interpretations so brilliant. Most of the sources from which information has been gathered are by Western economists, but key studies by Japanese scholars have also been used. Many of the developments described have been treated in English before, but never yet with this over-all thoroughness and with such perceptive correlations. Moreover, Dr. Lockwood has skillfully placed topical analyses in the useful context of Japanese experience as a pioneer modernizer in Asia—a precursive grappler with problems which now confront other Asian economies, including that of mainland China, ones in earlier stages of agricultural and industrial advancement.

Few may read this nearly 600-page text thoroughly, but it will serve many well for information and interpretations about topics of their special interest. For example, the reviewer was particularly interested in the light that is shed on Japanese social stratification and mobility in relation to political behavior; and he was well rewarded. The author's chief regret (as expressed in the Preface): "that the impersonal statistics which crowd its pages fail entirely to convey a sense of the human aspirations, the personal leadership, the toil and learning and sacrifice which built the Japanese economy" is, of course, inherent in this kind of treatment; still it is possible to sense his appreciation of these factors and his sensitivity to policies bearing on problems of socio-economic justice. His style is remarkably lucid for this kind of writing.

The first two chapters provide a concise economic history of Japan from the Restoration to World War I, and then on to 1936, latterly with more emphasis on changing economic structure after the great depression and the occupation of Manchuria. Chapter III describes major aspects of economic growth during the seven decades before Japan became deeply involved in an increasingly total war. At one point, Dr. Lockwood concludes that "the pressure of population was being gradually relieved by the growth of income and wealth per person. This process went forward steadily with only temporary setbacks, until war destroyed the civilian economy after 1938 and produced an 'overpopulation' crisis of first-rate magnitude." Chapter IV, under the general title: "Technology," includes a description of the structure of Japan's labor force. The *zaibatsu* and problems of competition *vs.* collusion are also treated here. Reasons are given for economic combinations and concentrations of power; their positive functions as well as dangers receive attention. The next chapter concerning economic capital includes sections on distribution of income, capital accumulation and investment, and lessons to be derived from Japanese experience in the channeling of capital.

Not until Chapters VI and VII does the author concentrate on Japan's foreign trade, and then (especially Pp. 307–310) he convincingly corrects the common overemphasis on the dependence of Japan's economy on foreign trade. As he explains, the industrial revolution in Japan, though stimulated by trade and technology from the West, was a pervasive development, relying (except for an important sector—about 25–35 per cent) on domestic markets As compared to most other major industrial economies, however, this is a rather high proportion. The second of these two chapters treats the role of overseas trade in prewar Japanese economic development. The role of trade with China—exchanges with net balances usually in Japan's favor—is seen.

Next come two chapters describing domestic and international factors influencing changes in the structure of the Empire's economy. Chapter VIII treats changes in incomes and expenditures, gives international comparisons, and interprets the effects of Japanese specialization for international markets. Chapter IX on employment of resources includes a summary analysis of the structure of the Japanese labor force. The final chapter. "The State and Economic Enterprise," includes analyses of the structure and distribution of taxes, trade policies, features of Japan's tariff system, public policies regarding group interests, and a concluding summary.

ALLAN B. COLE

The Fletcher School of Law
and Diplomacy

DELMER BROWN. *Nationalism in Japan: An Introductory Historical Analysis.* Pp. viii, 336. Berkeley and Los Angeles: University of California Press, 1955. $5.00.

Professor Brown has written a well-documented, interesting, and scholarly book on Japanese nationalism, somewhat in the style of a text book. It is probably intended for use in a general course on nationalism and should be worthwhile for such a purpose, but it contains little if anything new to students of Japanese history.

The thesis presented is that nationalism is a type of group loyalty; that its growth in Japan was influenced by Japan's geographical separateness and the further elements of a common racial descent, language, religion, and government activated by social and political developments placing the members of the nation in a close interdependent relationship. These developments are associated with technological progress, economic expansion, political centralization, and cultural unification within the nation; and competition, rivalry, or danger from other nations. At the base of the present two-world struggle, the author tells us, is the incompatability of the open society with the closed society. In the former, where nationalism develops under conditions of long periods of unusual economic growth and freedom from foreign danger, it is less virulent and enjoys great political and social mobility; in the latter, where nationalism develops under foreign pressure with feelings of fear and hatred, the nation is not so realistic or rational in the appraisal of its own strength and that of other nations, and the established ruling groups usually remain in power.

For nine chapters, the author discusses succeeding periods of Japanese history with relation to the elements above-mentioned and endeavors to trace the growth of group consciousness, and the spread of nationalism from the ruling classes to the populace as a whole. For example, he points out that during the Bakufu period, internal political rivalries were as important as foreign pressure in bringing about the Restoration while, on the contrary, after 1936, nationalism was more engendered by a strong fear of foreign enemies and a powerful sense of mission to establish a new order in East Asia. However, being able subsequently to appraise the relative importance of each element in any given set of circumstances is not quite the same as being able to formulize the probable effect of each element in a new combination of them. Due to the sociological nature of the subject, predictions cannot be made with any degree of positiveness. Therefore, the study, while valuable as an historical narrative, provides no scientific or certain indication of the future direction that nationalism in Japan may take. The hope is expressed that it will not be based on the fear motif which might possibly compel the Japanese to seek nationalist growth within the Communist orbit.

Certain observations of the author are open to question such as his statement that even after the collapse of Germany, the dropping of the atomic bomb on Hiroshima, and the declaration of war by Russia, *most* Japanese were determined to fight on to the final battle (cf. Butow's "Japan's Decision to Surrender") but on the whole, the book is accurate and an excellent addition to the literature on the Far East.

ALBERT E. KANE

Washington, D. C.

A. CURTIS WILGUS (Ed.). *The Caribbean: Its Economy.* Pp. xix, 286. Gainesville: University of Florida Press, 1954. $4.50.

This volume contains the papers presented at the fourth annual conference on the Caribbean held at the University of Florida in December 1953, sponsored by the School of Inter-American Studies The contributions are grouped under five major headings: Resources and Production, Manufacturing and Investments, Transportation and Marketing, Labor and Industry, Culture and the Economy.

A unique—and rewarding—feature of the volume is the attention given to problems of private investment. A number of business representatives discuss the Caribbean area as an outlet for North American capital and trade. John M. Mitchell, manager of the export division of the Aluminum Company of America, stresses the importance of personal attitudes and suggests certain criteria for United States investments in foreign countries, the most important being that "the investment should be a project that will benefit the recipient country and its people" and that it "should be expected to earn only a reasonable return." Statements which I suspect have a more familiar ring to Latin Americans are made by Percy C. Magnus, President of Magnus, Mabee and Reynard, an export-import firm of New York City, and Frank K. Bell, Vice President of the Alcoa Steamship Company. Mr. Magnus suggests that not only expropriation but even the threat of seizure is enough to shut off the flow of venture capital. "The pen strokes affixed to the expropriation papers are a screeching siren signal heard throughout the world, warning capital not to invest in that country. Such acts can never be construed to be 'in the public welfare.'" Mr. Bell argues that the Caribbean should be considered "an American lake." (". . . it is a sad thing that about 50 per cent of the shipping in the Caribbean is under flags other than those of the Americas.") To achieve this goal, U. S. shipping should have "the kind of support America gives to most of her products—patronage and the necessary government assistance."

Victor L. Urquidi, of the United Nations' Economic Commission for Latin America, in a thoughtful article on "Financing Investment in Mexico and Central America," suggests that the "new" Latin-American pattern of economic development—which focuses on the domestic market rather than on the exportation of primary products—necessarily calls for a substantial amount of public investment (especially for social overhead items) and the channeling of savings into private enterprise undertakings through official development corporations and banking institutions. His main conclusion is that the experience of Mexico and Central America shows that the methods of financing development in the economically more advanced countries cannot be copied or easily adapted by the lesser developed countries.

A comprehensive survey of mineral resources in the Caribbean countries is presented by Alan Probert of the U. S. Bureau of Mines. Professor Carl O. Sauer provides a sweeping review of agricultural, forestry, and fishery resources. He makes a strong case for the native *conuco* technique of planting and for the plantation system ("bigness is no more bad in sugar and bananas than it is in shoes or automobiles"). On the whole, however, agriculture—the mainstay of the Caribbean economies—receives amazingly little attention.

Possibly the most satisfying section in the book is the one on labor and welfare. Mary M. Cannon, of the Women's Bureau, U. S. Department of Labor, presents an understanding treatment of the relations between labor and government in the context of the special historical and cultural circumstances of the Latin-American countries. She explains how and why labor and government exist on terms of mutual suspicion, mutual support, and mutual dependence on lawyers "to tangle or untangle their problems." Ernest Schartz, of the Congress of Industrial Organizations, presents a comprehensive survey of labor organizations, covering each of the Caribbean countries. Clarence Senior offers a scholarly and well balanced treatment of housing problems and programs within the broad context of the demographic and economic factors which influence welfare in these countries. He stresses the implications for welfare of the continuing high birth rate and the sharply declining death rate. Housing, sanitation, and other welfare plans, he points out, will have a much better chance to succeed in raising levels of living if efforts are directed to the control of births. The remarkable progress which has been made by the Commonwealth of Puerto Rico, through its planned and integrated programs of development and welfare, is discussed in articles by Earl Parker Hanson and Felisa Rincón de Gautier. Puerto Rico stands out as the "Caribbean success story."

As if to underline the fact that man cannot live by bread alone, a section of the book is devoted to culture, including articles on Caribbean education, drama, music and poetry; Guatemalan arts and crafts, and archives.

In general, the volume leaves much to be said about the Caribbean economy; if the meat is a little spare, the *hors d'oeuvres* and the side dishes are quite tasty and the dessert at the end is a pleasant surprise.

HARVEY S. PERLOFF
University of Chicago

EARL PARKER HANSON. *Transformation: The Story of Modern Puerto Rico.* Pp. xxiii, 416 New York: Simon and Schuster, 1955. $5.00.

Chester Bowles says in his Introduction: "At a time when we Americans urgently need to burn deeply into our private consciences and public policies a sympathetic grasp of the hopes and strivings of the underdeveloped world, it is both fortunate and arresting that Puerto Rico can teach us so much."

"The Puerto Rican experiment in non-independent independence is totally unique."

"The accomplishments of Governor Luis Muñoz Marín are striking. He calls his administration 'a government of the poor for the poor.' 'Bread, Land, and Liberty,'" is the rallying call of his Popular Democratic Party and of awakening peoples everywhere in Asia, Africa, and South America."

These themes are vigorously expanded in a dramatic narrative by Earl Parker Hanson, geographer, explorer of the Amazon, first head of the United States Economic Mission to Liberia, formerly on the staff of the Mississippi Valley Committee, and of the predecessor to the present Puerto Rico Planning Board.

Contemporary history, cheerful for a change, strides through these colorful pages, with the reader hard put to keep up with the pace. The story is of the transformation of Puerto Rico from a colonial poor house, a blot on the coat of arms of Uncle Sam, to an outstanding democracy with economic achievements unparalleled by the Caribbean colonies of England and France.

"With the world in a turmoil over the twin problems of abolishing colonialism and raising living standards of billions of peoples, Puerto Rico, with Washington's full cooperation, has set an important example of the manner and manners in which these problems can be solved. Visitors who see what Puerto Rico has done and is doing go home again saying, 'This is America's answer to Communism. . . .'"

Morris Llewellyn Cooke, the social engineer and ex-administrator of the United States Rural Electrification Administration, says of *Transformation:* "It is one of the most useful and interesting treatises on government I have ever seen."

Hanson commends Tugwell, the last continental governor of Puerto Rico, for his leadership and courage in advancing the self-government of Puerto Rico. Some other United States governors are handled without gloves, but an appealing character is created for Governor Muñoz Marín, the idealistic young reformer who, after years of apparent defeat, finally won the confidence of the most suspicious forgotten people of Puerto Rico and out of them created a political party committed to definite economic reforms now largely consumated.

This anecdote about him, among others, is revealing. Muñoz, being driven by politicians after his election, retreated to a resort for privacy, and gave orders that no one was to be admitted except members of his family and *any* Jíbaro (peasant) *who might want to see him.* A poor old Jíbaro promised the Virgin that if Muñoz was elected governor he would make a pilgrimage and kneel at the latter's feet. After the election the old man sold his last two chickens and journeyed to see the Governor. When he told the Governor that he was going to kneel before him the Governor said: "There is no reason why I should not kneel with you." Afterwards, someone suggested that the old man having sold his only chickens to journey to the Governor, therefore the Governor should give him the money to get back home. The Governor said: "When a man offers you his soul do you give him change?"

The plain people are repaying Muñoz' love and respect by increasing majorities at each election.

Under Muñoz's leadership since he became Governor in 1948 Puerto Rico has been opening a new factory once a week, has doubled its per capita income, has eliminated malaria, built new schools, roads, and hospitals. All of this has been done as part of the United States with the understanding aid of the Federal Government, but without management from the continent. Contemporary Puerto Rico is the brightest feather in Uncle Sam's hat, a feather which should be more conspicuously displayed.

This is the aim of *Transformation,* a story of the upsurgence of the human spirit under democratic opportunity.

The United States Information Service should reprint *Transformation* in a cheap edition in languages read by people in undeveloped countries who are deluged with Russian claims of its own perfect system and of the alleged degradating exploitation by capitalist America.

OTTO TOD MALLERY

Philadelphia, Pa.

CORRECTION

Professor Pieter Geyl has asked the editor to call attention to the fact that his review of Alfred Cobban's *Ambassadors and Secret Agents* in the January 1955 issue of THE ANNALS as printed contained an error. On page 173, column 2, lines 11–12, ". . . the Patriots . . . could not count on the support of France" should read, ". . . the Patriots . . . could count on the support of France."

LETTERS TO THE EDITOR

Dear Sir:

In his review of my book "Why Dictators?" (ANNALS, November 1954), Professor Odegard says that I "have not given an answer to the question the title poses," and that my book contains "not much in the way of theory or structure."

The answer to the question "why dictators?" is embodied in my basic theory which is outlined in the Introduction (pp. 1–6) and set forth in detail in the first sections of the first three parts.

In the Introduction I explain that the concept of dictatorship, because of its complex character, cannot be handled scientifically unless it is split up into a series of types, which then are sketched in a preliminary fashion. The Introduction also briefly indicates the place of these types in human history, and the fact that in spite of their intrinsic differences, they all exercise a function in the development of revolutions, typical of Western civilization.

Thus, while a single all-encompassing answer to the question "why dictators?" cannot be given, my book answers the question for each type. In doing so, it stresses the general principle that, while the often queer characters fit to enact the part of one or the other of these different types were as numerous as are bacteria, they could only become "socially virulent" when favored by the right circumstances, that is, by a revolution with an opening for the type in question.

On pp. 8–24 there is given the theory of the emerging of what I call the "classical" dictator type, meaning the middle-of-the-road man who comes to power through antiaristocratic uprisings of city folks and peasants, or peasant elements as whose leader he emerges. On pp. 24–66 historical material is then introduced for the purpose of testing my detailed theory on the rise of the "classical" dictator and of thereby also enhancing the general understanding of the individual cases concerned. This is followed (pp. 66–104) by a composite picture of the general characteristics of the "classical" dictator, comprising his ascent to power, the way he is financed, his political technique, and his relations to the leading social forces of his time.

In Parts II and III, the same procedure is followed with reference to the "ultrarevolutionary" type (that is, dictatorships caused by "revolutions from below") and the "counter and pseudorevolutionary" types (dictators who owe their rise to a co-operation with the classes on top). Both these parts start with my general theory of the emerging of these types (pp. 106–110, and 166–174, respectively) and then proceed to particulars. In the last part (No IV) the general theoretical yardsticks shaped in the preceding parts are used for the analysis of present day dictatorships.

I am sending these lines to THE ANNALS in order to give your readers an adequate idea of my basic theory, the methods, and the structure of my book, and thus to enable them better to decide for themselves whether or not I have made my point. It might also be open to question whether my "canvas" is so full of sight-obscuring figures as Professor Odegard would lead one to believe. At least no other reviewer missed its symmetry and landscape.

My methods—based on Max Weber—can of course be used with reference to any social subject, but they might be found to offer a special interest when applied to a topic as important and timely as dictatorship.

GEORGE W. F. HALLGARTEN
Washington, D. C.

OTHER BOOKS

ADAMS, GEORGE P., JR. *Competitive Economic Systems.* Pp. xii, 516. New York: Thomas Y. Crowell Company, 1955. $6.00.

AUSTIN, JOHN. *The Province of Jurisprudence Determined, and the Uses of the Study of Jurisprudence.* Pp. xxi, 396. New York: Noonday Press. No date. $3.50.

BALDWIN, LELAND D. *Survey of American History.* Pp. xv, 786, lxxv. New York: American Book Company, 1955. $6 00.

BARKAN, MANUEL. *A Foundation for Art Education.* Pp. xi, 235. New York: Ronald Press Company, 1955. $4.00.

BORDEN, MORTON. *The Federalism of James A. Bayard.* Pp. 256. New York. Columbia University Press, 1955. $4 00.

BRUNNER, EDMUND DE S., and WILBUR C. HALLENBECK. *American Society: Urban and Rural Patterns.* Pp. xviii, 591. New York: Harper and Brothers, 1955. $6.00.

CAILLIET, EMILE. *The Dawn of Personality.* Pp. 232. Indianapolis;-New York: Bobbs-Merrill Company, 1955. $3 00.

CARR, ROBERT K. *American Democracy in Theory and Practice.* Pp. xxix, 957. Revised ed. New York: Rinehart and Company, 1955. $6 00.

CARTTER, ALLAN MURRAY. *The Redistribution of Income in Postwar Britain: A Study of the Effects of the Central Government Fiscal Program in 1948–49.* Pp. viii, 242. New Haven, Conn.: Yale University Press; London: Geoffrey Cumberlege, Oxford University Press, 1955. $5.00.

Case Against 'Right to Work' Laws, The. Pp. 171. Published jointly by the Legislative, Legal, and Education and Research Departments of the Congress of Industrial Organizations. No date $3 00.

CÉPÈDE, MICHEL, and MAURICE LENGELLÉ. *L'économie de l'alimentation.* Pp. 123. Paris: Presses Universitaires de France, 1954. No price.

CHALLENER, RICHARD D. *The French Theory of the Nation in Arms, 1866–1939.* Pp. 305. New York: Columbia University Press, 1955. $4.50.

CLAUNCH, JOHN M. *The Government of Dallas County, Texas.* (Arnold Foundation Studies. Vol. V. New Series.) Pp. 400. Dallas, Tex.: Southern Methodist University Press, 1954. $5.00

COLM, GERHARD, with the editorial assistance of HELEN O. NICOL. *Essays in Public Finance and Fiscal Policy.* Pp. xvii, 375. New York: Oxford University Press, 1955. $4.75.

COUPER, WALTER J., and ROGER VAUGHAN.

Pension Planning: Experience and Trends. Pp. x, 245. New York. Industrial Relations Counselors, 1954. No price.

Crockett, Joseph P. *The Federal Tax System of the United States: A Survey of Law and Administration.* Pp. xxii, 288. New York: Columbia University Press, 1955. $4.75.

Crook, J. A *Consilium Principis: Imperial Councils and Counsellors from Augustus to Diocletian.* Pp. xi, 198. New York: Cambridge University Press, 1955. $5 00.

Crosser, Paul K. *The Nihilism of John Dewey.* Pp. xi, 238. New York: Philosophical Library, 1955. $3.75.

Dante. *Monarchy, and Three Political Letters.* (The Library of Ideas, Vol. VII.) Pp. xxi, 121. New York: Noonday Press No date. $2.75.

Dastur, Aloo J. *Man and His Environment.* Pp. 296. Bombay, India: G. R. Bhatkal for The Popular Book Depot, 1954. Rs. 12/8.

Dunner, Joseph. *Baruch Spinoza and Western Democracy.* Pp xiii, 142. New York: Philosophical Library, 1955 $3.00.

Edey, Harold C., and Alan T. Peacock. *National Income and Social Accounting.* Pp viii, 224. London: Hutchinson's University Library. (Distributed by Longmans, Green, and Company) 1954. $1 80 text; $2.40 trade.

Employee Personnel Practices in Colleges and Universities, 1953–1954. Pp. 190 Champaign, Ill.: College and University Personnel Association. No date $4.00.

Faretra, A. P. *Dimensions of Life.* Pp. 59. New York: Pageant Press, 1954. $2.00

Faris, Robert E. L. *Social Disorganization.* 2d ed. Pp. viii, 664. New York: Ronald Press Company, 1955. $5.50

Franco, José Luciano (Ed). *Documentos para la Historia de Haiti en el Archivo Nacional.* (Publicaciones del Archivo Nacional de Cuba, No. XXXVII.) Pp 259. La Habana, Cuba: Archivo Nacional de Cuba, 1954. No price.

Friedlander, Walter A. *Introduction to Social Welfare.* Pp. xvii, 683. New York: Prentice-Hall, 1955 $9 00.

Gerdner, Gunnar. *Parlamentarismens kris i Sverige vid 1920—talets början.* Pp. 568. Uppsala: Almquist och Wiksell, 1954. No price.

Gordon, Morton, and Kenneth N. Vines. *Theory and Practice of American Foreign Policy.* Pp. x, 562. New York: Thomas Y. Crowell Company, 1955. $2.95.

Handbook on State and Local Taxes. Pp. 142. Washington, D. C.: Department of Education and Research, Congress of Industrial Organizations No date. $3 00.

Hoebel, E. Adamson, and others. *Readings in Anthropology.* Pp xiv, 417. New York; Toronto; London: McGraw-Hill Book Company, 1955. $5 00.

Hoxie, R. G. and others *A History of the Faculty of Political Science, Columbia University.* Pp. x, 326. New York: Columbia University Press, 1955. $4 50

Infield, Henrik F., and Koka Freier. *People in Ejidos: A Visit to the Cooperative Farms of Mexico.* Pp. 149 New York: Frederick A. Praeger, 1954. $3.00.

Institutes and Their Publics: Proceedings of the International Conference of Institutes of International Affairs, New York, October 1953. Pp. viii, 156 New York: Columbia University Press for the Carnegie Endowment for International Peace, 1955. $1.50.

Johnson, John L. *Income in Kentucky: County Distributions by Amount, by Type, and by Size.* Pp. xx, 310. Lexington. University of Kentucky Press, 1955 $4.50.

Knode, Jay C. *An Intellectual Primer.* Pp. 88. New York: Philosophical Library, 1954. $2.50.

Kornhauser, Arthur, Robert Dubin, and Arthur M. Ross (Eds). *Industrial Conflict.* (Prepared for the Society for the Psychological Study of Social Issues.) Pp. xi, 551. New York: McGraw-Hill Book Company, 1954. $6 00

Lazarsfeld, Paul F., and Morris Rosenberg (Eds.). *The Language of Social Research.* Pp. xiii, 590. Glencoe, Ill: Free Press, 1955. $6 50.

Macdonald, Austin F. *American State Government and Administration.* Pp. xiii, 672. 5th ed. New York: Thomas Y. Crowell Company, 1955. $6.00

Macdonald, Austin F. *State and Local Government in the United States.* Pp. xvi, 667. New York: Thomas Y. Crowell, 1955. $6.00.

Mallory, J. R. *Social Credit and the Federal Power in Canada.* Pp xii, 204. Toronto: University of Toronto Press, 1954. $5.00

Marx, Herbert L, Jr. (Ed). *Defense and National Security* Pp. 192. New York: H W. Wilson Company, 1955. $1.75.

Maxwell, James A. *Fiscal Policy: Its Techniques and Institutional Setting.* Pp. vi, 218. New York: Henry Holt and Company, 1955. $2.90.

Meek, Ronald L. (Ed). *Marx and Engels on Malthus.* Translated by Dorothea L. Meek and Ronald L. Meek. Pp 190. New York: International Publishers, 1954. $2.25.

Moley, Raymond. *What Price Federal Rec-*

lamation. (National Economic Problems, No. 455.) Pp. vii, 72. Washington, D. C : American Enterprise Association, 1955. $1.00.

Moses, Elbert R. *Abraham Lincoln: "From Cabin to Capitol."* Pp. 139. Daytona Beach, Fla.: College Publishing Company, 1955. $2.95.

Muensterberger, Warner, and Sidney Axelrad (Eds.). *Psychoanalysis and the Social Sciences.* (Vol. IV.) Pp. 295. New York: International Universities Press, 1955. $6.00.

Muhammads People: A Tale by Anthology. Translated by Eric Schroeder. Pp. xviii, 838 Portland, Me.: Bond Wheelwright Company, 1955. $10.00.

Mund, Vernon A. *Government and Business* Pp. xii, 738 2d ed. New York: Harper and Brothers, 1955. $6.00.

Olkhovsky, Andrey *Music under the Soviets: The Agony of an Art.* Pp. xv, 427. New York: Frederick A Praeger for the Research Program on the U.S.S.R, 1955. $6.00.

Peacock, Alan T., and others (Eds.). *International Economic Papers* (No. 4). Pp. 229. London: MacMillan and Company; New York: The Macmillan Company, 1954 $3 50.

Poniatowski, Michel. *L'avenir des pays sous-développés.* Pp. 199. Paris: SEFI, 1954. No price.

Rank, Richard. *Einwirkung des Krieges auf die nichtpolitischen Staatsverträge.* Pp 234. Uppsala, Sweden: Svenska Institutet för Internationell Ratt, 1949. No price.

Raper, Arthur F., and others. *Urban and Industrial Taiwan—Crowded and Resourceful.* Pp. 370. Taipei, Taiwan, China: Foreign Operations Administration, Mutual Security Mission to China, and National Taiwan University. No price.

Reitman, Francis. *Insanity, Art, and Culture.* Pp. 111. New York: Philosophical Library, 1954. $3.75.

Renouvin, Pierre. *Le XIXe siècle, I.: De 1815 à 1871: L'Europe des nationalités et l'éveil de nouveaux mondes.* (Histoire des relations internationales, Vol. V.) Pp. 420. Paris: Librairie Hachette, 1954 No price.

Riddle, Oscar. *The Unleashing of Evolutionary Thought.* Pp xxi, 414 New York: Vantage Press, 1954. $4 50.

Rossi, A. *La guerre des papillons: quatre ans de politique communiste* (1940–1944). Pp. 332, xlviii. Paris: Les Iles d'Or, 1954. No price.

Seth, Ronald. *Spies at Work.* Pp. 234. New York: Philosophical Library, 1954. $4.75.

Shevky, Eshref, and Wendell Bell. *Social Area Analysis: Theory, Illustrative Application and Computational Procedures.* Pp. vi, 70. Stanford, Cal : Stanford University Press; London: Geoffrey Cumberlege, Oxford University Press, 1955 $1.75.

Stokes, Milton L., and Carl T. Arlt. *Money, Banking, and Financial System.* Pp. vi, 670. New York: Ronald Press Company, 1955. $6 00.

Swanson, John E., and Francis A. Miskell. *Public Employee Retirement in Texas.* (Public Affairs Series, No. 21.) Pp. xi, 147. Austin, Texas: The University of Texas, Institute of Public Affairs, 1955. $1.50.

Swettenham, John Alexander. *The Tragedy of the Baltic States.* Pp xi, 216. New York: Frederick A. Praeger, 1954. $3.50.

Taft, Donald R., and Richard Robbins. *International Migrations: The Immigrants in the Modern World.* Pp. viii, 670. New York: Ronald Press Company, 1955. $7.00.

Timasheff, Nicholas S. *Sociological Theory: Its Nature and Growth.* Pp. xv, 328. Garden City, N. Y.: Doubleday and Company, 1955. $4.50.

Turner, Henry A. (Ed.). *Politics in the United States: Readings in Political Parties and Pressure Groups.* Pp. xi, 436. New York: McGraw-Hill Book Company, 1955. $5.25.

Wallis, Wilson D., and Ruth Sawtell Wallis. *The Micmac Indians of Eastern Canada.* Pp. xv, 515. Minneapolis: University of Minnesota Press, 1955. $7.50.

Wayper, C. L. *Political Thought.* Pp. xii, 260. New York: Philosophical Library, 1954. $3 75.

White, J. E. Manchip. *Anthropology.* Pp. viii, 191. New York: Philosophical Library, 1955. $2.75.

Williams, Orlo Cyprian. *The Clerical Organization of the House of Commons, 1661–1850.* Pp. xv, 366. New York: Oxford University Press, 1954. $5 60.

INDEX

INDEX

Africa
  air transport in, 136
  See also North Africa
Agriculture, use of aircraft in, 64, 135, 138
Air, *see* Atmosphere
Air bases
  and Western defense, 33, 35–36, 49–50, 51, 54, 55, 56, 57, 71, 74, 81, 88, 89, 105, 109–110, 119, 120, 121, 126, 127
  location of, and bombing, 124
  Siberian, in World War II, 17
Air France, 137
Air mail, 31, 64
Airfields, viii, 136
  Chinese, 79, 80
  Middle Eastern, 113
  physical conditions of, effect on flying, 1
  See also Air bases
Airlift, *see* Transport planes
Airlines, commercial, 31, 33, 64, 67, 69, 134–135
Airplane design and manufacture, 49, 134–135, 137–138
  Australian, 56
  Canadian, 56
  European, 15, 41, 51–55, 98
  Japanese, 56
  Middle Eastern, 109
  Soviet, 40–46, 56–57
  U. S., 31, 32, 34–35, 41, 51, 67, 121
Alaska, 16, 20, 35, 45
Alexander, Harold R. L. G., 110
American Academy of Political and Social Science, Report of the Board of Directors to the Members, 1954, 141–143
Anderson, Orvil A, 74
ANZAM, 84
Arab League, 114
Arab states, 111, 115
  air power, 111–113
  and U. S., 116–117
  Arab-Israeli conflict, 111–113
Army (U. S), 69, 70, 72, 74, 75, 83, 89, 99
  air elements of (current), 19, 67, 68
  air power, in World War I, 30
  air services, between world wars, 31–32
  attitude toward air power, 18, 19, 31
  See also Army Air Forces
Army Air Forces (AAF), 32, 34
  Air Transport Command, 33
Army Aviation, 19
Arnold, H. H, 74
  cited, 47
ARON, RAYMOND, Europe and Air Power, 95–101
Athens, 96, 100, 116
Atmosphere
  air mass movements, 2–3
  composition, 3
  layers, 4–5, 10
  spheres, 3–4, 10
  winds, 1–3
Atomic bombs (fission), 23, 34, 37, 49, 57, 76, 79, 81, 82, 95, 107, 109, 120
  for defined targets, 36
  in limited wars, 20
  psychological effects of, at Hiroshima and Nagasaki, 60–61
  tactical, 104, 105, 126
  See also Nuclear weapons
Atomic Energy Commission (U. S.), 38
Australia, 55
  air power, 56
  ANZAM, 84
  ANZUS (U. S. treaty), 83
  Royal Australian Air Force, 74
  SEATO, 84

B-36, 19, 35, 36, 57, 68, 71
B-47, 34, 35, 36, 50, 53, 55
Baldwin, Hanson W, quoted, 70
Baldwin, Stanley, 15
Bao Dai, 86
Barnett, Lincoln, cited, 11
Belgium, 51, 52, 53, 55
Bell, Alexander Graham, quoted, 13
Benson, Otis O, Jr., cited, 11
Berlin
  airlift for children in, 65
  blockade and airlift, 64, 69, 75
  bombing of, 17
Bismarck, Otto von, 128
Blériot, Louis, 12
Bradley, Omar Nelson, 74
Brereton, Lewis H., 74
Britain, Battle of, 17, 20
British Commonwealth, 90, 139
British Empire, 14
British European Airways Corporation, 137
Brodie, Bernard
  cited, 17; quoted, 103
Bulganin, Nikolai Aleksandrovich, 47
Bunsen, Robert Wilhelm, 3
Burma, 83, 84, 86, 109
Bussche, Axel von dem, cited, 104

Cambodia, 83, 100
Canada, 27, 35, 50, 52, 56
Carrier-based aircraft, 18, 33, 56, 68, 69–70, 82
Chamberlain, Neville, 15–16
Chennault, Claire L., 74
Chiang Kai-shek, 83, 111
Chilston (Eric Alexander Akers-Douglas), 3rd Viscount, 16
China, 78, 110
China, People's Republic of (Communist, mainland, Red China), 50, 106, 110, 138
  Air Force, 21, 56, 79, 83
  and Formosan situation, 82–83
  and Indochina, 80–82, 83
  and Korean War, 80, 104, 113
  and Middle East, 115
  U. S. policy toward, 76–86 (*passim*)
China, Republic of (Formosa; Nationalist China)
  Air Force, 56
  U. S. alliance with, 66, 83
  See also Formosa
Churchill, Winston, 13, 14, 15, 18, 54, 107
  cited, 47
  quoted, 18, 71
Cities, *see* Urban communities
Civil War (U. S.), 97
Civilian aviation, vii, viii, 31, 64, 113, 134–140
Clausewitz, Karl von, 16, 18
Clegg, J. A., cited, 11
Coast Guard, United States, air elements of, 67
Collective security, 16, 20, 21, 80, 84, 86, 87–94
Colonialism, 77–78, 81, 85–86, 115, 116, 136
Communications
  in aviation and military defense, 5, 50–51, 61, 105, 122, 124, 125
  role of aviation in, 12, 58, 64, 137
Congress (U. S.)
  and air power, 18–19, 68, 70, 73, 75, 121
  and Formosan situation, 82
  military appropriations, 31, 75
Conventional forces and weapons, 20, 36, 89, 99, 102, 103, 105, 107–108, 124
  See also Surface forces
COTTRELL, ALVIN J., The Role of NATO's Air Forces, 102–108
Cuneo, John R., cited, 13
Czechoslovakia, 15–16, 28

Davis, Elmer, quoted, 79
Defense
  against guided missiles, 27, 37, 130, 132
  and air power, vii, 13–14, 17, 20, 21–24, 36, 105, 122, 126
  difficulties of, in air-atomic warfare, 22, 27, 36, 106, 118, 132
  guided missiles in. 128, 130, 131, 132
  of Western Europe, 27, 97–101, 102–108, 123–124, 126–127
  Western Hemisphere, 19, 20, 21, 26, 27, 34, 56, 68–69, 90, 118, 122, 126
Denmark, 55
Department of Defense, 19, 70–75 (*passim*)
  definition of strategic air warfare, 36
  See also Department of the Air Force
Department of the Air Force, 19
Deterrence
  by air-atomic power, vii, 20–21, 24, 25–26, 29, 35, 37, 68, 71, 76, 88, 89, 99, 100, 102, 106, 107, 108, 119, 121
  by conventional forces and weapons, 107, 108
  role of guided missiles in, 122, 132
  See also Collective security
Dethleffsen, Erich, cited, 105
DeWitt, Nicholas, cited, 46
Dienbienphu, 79, 81–82, 104
Diplomacy, and aviation, 58, 138–139
Disarmament, 15, 102, 126
Disarmament Commission (U. N.), 102
Disaster relief, *see* Relief and rescue
Doolittle, James H. 74
Douhet, Giulio, 16–17, 123
  quoted, 13
Dulles, John Foster, 89, 93, 138
  quoted, 89, 93

Eaker, Ira C., 74
Earle, Edward Mead
  cited, 13; editor, 13
Egypt, 109, 110, 112–113
Eisenhower, Dwight D., 38, 70, 74, 93
  quoted, 25–28 (*passim*), 66, 89, 93
Ely, Louis B., cited, 47
EMME, EUGENE M., Some Fallacies Concerning Air Power, 12–24
Emme, Eugene M., cited, 12
Engineering, schools and students, U. S. and USSR, 46
Ethiopia, 15, 114, 115

Fainsod, Merle, cited, 47
FAY, ELTON C., Air Strength of the United States, 30–37
Ferguson, James, cited, 105
FINLETTER, THOMAS K., Air Power and Foreign Policy, Especially in the Far East, 76–86
Finletter, Thomas K., cited, 47, 68
Fire fighting, airplanes in, 65, 135
Foreign policy (U. S.)
  and air-atomic power, viii, 12, 22–24, 84–85, 88, 126–127, 132
  in the Far East, 76–86

  toward Soviet Union and Communism, 20, 84–85, 127
  See also Collective security; Massive retaliation
Formosa, 78, 82–83, 84, 85, 86
  See also China, Republic of
Forrestal, James, 72
  quoted, 20–21
France
  air bases in, 54
  air power, 50, 52, 54, 55, 98
  and German rearmament, 99, 107
  and Indochina, 80, 81, 82, 83, 86
  commercial airlines and air travel, 97, 135, 137, 139
  in Middle East, 115, 116
  in World War I, 13
  in World War II, 20, 54, 101
  SEATO, 84
  wars of, limited and general, 96–97

Galai, N., cited, 43
Galland, Adolf, quoted, 42
Garthoff, Raymond, cited, 41
Geneva Conference (1932–33; armaments reduction), 15
Geneva Conference (1954), 81
Geography, aerial, 1–11
Germany
  air power in World War II, 17, 37, 42, 96, 104, 105, 110, 128–129, 132
  bombing of, in World War II, 17, 60, 96
  development of air power between world wars, 15–16, 41
  East, 97, 104
  in Middle East, 110–111, 115, 116
  in Spanish Civil War, 15, 32
  in World War I, 13–14, 110
  industrial power, 90
  influence on Soviet aviation, 40, 44, 45, 47
  West, rearmament program, 55, 56, 72, 99, 105, 107
Gibbon, Edward, 23
Goering, Hermann, 15, 16
Golovanov, Alexander Evgenevich, 42
Gorbunov, 45
Gravitation, 4, 7, 8
Great Britain
  air bases in, 49, 50
  air power (current and potential), 49, 52–54, 55, 98
  air power between world wars, 14–16
  and hydrogen bomb attack, 106
  commercial airlines, 135, 137
  in Middle East, 14, 55, 115, 116
  in World War I, 13–14
  in World War II, 17, 20, 52, 53, 96, 132
  military services and Parliament, 73
  North Sea floods, 65, 138
  nuclear superiority, vii
  See also United Kingdom
Greece, 55
Greenland, air bases in, 35, 49
Ground forces, *see* Surface forces
Gruenther, Alfred M., 69
Gudkov, 45
Guided missiles, 18, 21, 22, 44, 53, 56, 68, 95, 98, 122, 125, 128–133
  intercontinental ballistic missiles (IBM), 18, 23, 27, 36–37, 122
  V-weapons, 17, 47, 128–129, 132
Gurevich, Mikhail I., 45

Haber, Heinz, quoted, 8
Haines, W. W., quoted, 71
Harnwell, Gaylord Probasco, 142
Harris, Arthur, cited, 47
Haurwitz, Bernard, cited, 11
Helicopters, 33, 55, 137
Heron, S. D., cited, 47
Hiroshima, 60, 95, 104
Hitler, Adolf, 15–16, 17, 32, 42, 110–111
Holley, I. B., Jr., quoted, 22
HULL, EDWARD W. S., A Steel Ring for the Iron Curtain: An Appraisal of Air Power in Other Nations, 49–57
Humphrey, George M., 70, 74
Hungary, 28
Hydrogen (thermonuclear) bombs, 26, 34, 79, 81, 95, 100, 109
  as deterrent, 21, 37
  capabilities of, 36, 106
  comparative cost of warfare with, 93
  Soviet possession of, 19, 39, 57, 107
  See also Nuclear weapons

IBM, *see* Guided missiles
Ilyushin, Sergei Vladimirovich, 45
India, 84, 86, 117
Indochina, 28, 51, 54, 78, 80–82, 83, 84, 86, 103, 116
Indonesia, 83, 84, 86
Instruments, 1, 5, 8, 36
  See also Navigation
International relations
  and aerial geography, 1, 9–11
  and aviation, vii, viii, 1, 9–11, 58, 59, 64, 65–66, 136–140
  and psychological warfare, 61–63
Iran, 111, 114
Iraq, 110, 114
Islam, 113, 115
Israel, 115, 117
  air power, 109, 111–113
  Arab-Israeli conflict, 111–113
Italy, 15, 51, 55

Japan, 45, 55, 56, 78, 83, 84, 86
  air power of, 56, 116
  as Far Eastern power, 110
  bombing in Manchuria, 15
  bombing of, 17, 60–61, 74, 106
    See also Hiroshima
  industrial power, 90
  U. S. treaty with, 83
Johnson, Louis Arthur, 70
Joint Chiefs of Staff (U. S.), 70–71, 73
  Chairman, 19–20
Junkers, Hugo, 40

Kashmir, 138
Kelly, David, quoted, 47
Kenney, George C., 74
Kerr. Walter, cited, 47
Khripin, V. V, 41, 42
Khrunichev, M V., 47
Kleiman, Robert, cited, 107
KLM (Royal Dutch Airlines), 135
Korea, 55, 56, 83, 116
  U. S. treaty with, 83
Korean War, 17, 19, 20, 21, 28, 32, 45, 51, 56, 69, 70, 74, 80, 85–86, 99, 100, 103, 104, 105, 113, 114, 120

Laos. 83, 100
Lapchinsky, A. N., 41
Latin America
  air transport and industrial development, 136
  U. S. air travel to, 139
  USAF good-will tour, 64–65
Lavochkin, Semyon A, 45
LEACH, W. BARTON, Obstacles to the Development of American Air Power, 67–75
Leader, George M., 142
League of Nations, 14
Lebanon, 64, 109, 112–113, 115, 116
Lee, Asher, 41
  cited, 41, 45, 47
  quoted, 38
Lenin, Vladimir Ilyich, 39
Ley, Willy, 41
Libya, 114
Liddell-Hart, B. H, cited, 47
Lindbergh, Charles A, 31
LINEBARGER, PAUL M. A., Air Power in the Modern Middle East, 109–117
Lloyd George, David, 14
Lodge, Henry Cabot, Jr., 73
Logistics, air, *see* Transport planes
London, 14, 17, 71, 98
London agreement, 55, 66
Lovell, Bernard, cited, 11
Lovett, Robert A, 73
Luftwaffe, 15–16, 17, 41, 42, 96
Lukin, Sergei Georgevich, 47
Lusinov, Boris, 42

McFarland, Marvin W, cited, 12
Machiavelli, Niccolò, 112
Mahan, Alfred Thayer, 16, 18
  quoted, 23
Malaya, 83, 84
Malenkov, Georgi M., 42, 47
Manchuria, 15, 105
Manila Pact, *see* Southeast Asia Collective Defense Treaty
Manufacture, of airplanes, *see* Airplane design and manufacture
Mao Tse-tung, 80
Marine Corps, United States, 70, 72, 73, 74
  air elements of, 19, 33, 67, 69–70
Marshall, George Catlett, quoted, 24
Marshall Plan, 87
Massive retaliation, 23, 80–81, 82, 88–89, 102–103, 107, 114
Matsu, 82
Mecca airlift, 64
Menken, Jules, cited, 47
Meteors, 6
Middle East
  air power in, 109–117, 136
  attitude toward East-West conflict, 115–117
  defined, 109
  oil in, 55, 109, 110–111, 112, 115, 116
  Royal Air Force in, 14
Middleton, Drew. cited, 103, 104, 106
MIG's, 45, 51, 52, 57, 105
Mikoyan, Anastas Ivanovich, 45
Mikoyan, Artem I., 45, 47
Military Air Transport Service (U. S.), 33, 64, 69, 113
Miller, A. Austin, cited, 11
Millis, Walter, editor, 21
Minor, Harold B., 64
Mitchell, William, 16–17, 19, 123
Montgomery of Alamein, Bernard Law Montgomery, 1st Viscount, 74
  cited, 68, 69, 74
  quoted, 34
Moon, flight toward, 4
Munich Conference, 14, 15–16, 20
Murchie, Guy, cited, 11
MURPHY, ROBERT D, Collective Security in the Air Age, 87–94
Mutual Security Act, 87

Namais, Jerome, cited, 11
National Defense Act (1947), 19
National Security Council, 19, 70, 73
Nationalism, 12, 23, 61, 64, 136
Navigation, 8–9, 129
  See also Instruments

Navy (U. S.), 70, 72, 73, 74, 75, 79, 81, 89
  air elements of, 19, 33, 67, 68–69
  attitude toward air power, 18, 19, 31
  naval air Transport Service, 33
  Revolt of the Admirals, 68
  Seventh Fleet, 56, 82, 83
  See also Military Air Transport Service
Nepal, 84
Netherlands, the, 51, 52, 53, 55, 65
Neutralism, 117, 127
Neutrality Acts, 87
New Zealand, 83, 84
Newell, Homer E, Jr, cited, 11
Norstad, Lauris, 74
North Africa, 18, 50, 110
  air bases in, 35, 49, 50, 54
North Atlantic Treaty, 84, 114
North Atlantic Treaty Organization (NATO), 21, 81
  air power of, 50–55, 69, 76, 84–85, 98, 102–108, 126
  and nuclear weapons, 20, 99, 102–103, 105, 124
  in Middle East, 114
  military forces of, 90, 92, 99, 103–104, 106, 107–108
  political solidarity of, 76, 77
North Korea, 21, 105
North Sea floods, air relief, 65, 138
Northcliffe, A. C. W., quoted, 12
Norway, 55
Nuclear propulsion, viii, 8
Nuclear weapons (atomic and hydrogen), 20, 66, 87, 89, 98, 104
  and Middle East, 109, 113, 114
  and U. S. Far Eastern policy, 76, 77, 79, 80–81, 82, 83, 84, 85
  capabilities of, vii, viii, 25, 26, 36, 37, 49, 58, 60, 68, 97, 101, 106, 120
  cost of, 93, 98, 101, 119
  deterrent value of, vii, viii, 21, 26, 37, 71, 76, 88, 99, 100, 102, 107, 108, 119, 121
  development of delivery systems, 107, 118, 119, 124
  public attitude toward, 58, 60–61, 66, 79–80, 95, 97, 99, 101
  relation to air power, 13, 15, 16, 21, 26, 49, 57, 76, 83, 95, 123, 125
  research and development, 95, 118, 119, 126
  retaliatory significance of, 20–21, 26–27, 29, 49, 95, 122, 123, 124
  Soviet, 19, 39, 47, 57, 67, 70, 76, 77, 79, 82, 84, 85, 99, 100, 102–103, 107, 118–127 (*passim*)
  tactical, 27, 99, 104, 105, 125, 126
  vulnerability of U. S and West to attack by, 16, 22, 24, 50, 56, 76, 88, 97–98, 99, 105, 106, 107, 118, 120, 121–122

Oberth, Hermann, 41
Oil
  German shortages, in World War II, 104–105
  in Middle East, 55, 109, 110–111, 112, 115, 116
Okinawa, 49, 55, 56, 79
Oppenheimer, J. Robert, quoted, 103
Ottoman Empire, 110, 116

Pakistan, 55, 65, 84
Pan American World Airways, 137
Paris, 97, 98, 139
Patton, George Smith, Jr, 74
Pearl Harbor, 16, 18, 22, 32, 106
Peloponnesian War, 96, 116
PERKINS, DONALD T., Dropping the Pilot, 128–133
Perón, Juan Domingo, 65
Persia, 110
Pescadores, 82
Philippines, the, 56, 83, 84
Piccard, Auguste and Jacques, 7
Polikarpov, Nikolai N, 45
Political science, and aviation, vii–viii, 138
Portugal, 55
POSSONY, STEFAN T., and LESLIE ROSENZWEIG, The Geography of the Air, 1–11
Potemkin, Grigori Aleksandrovich, 39
POTTS, RAMSAY D., JR., The Foundations of Soviet Air Power: A Historical and Managerial Interpretation, 38–48
Powell, Cecil Frank, 103
  quoted, 106
President (U S.)
  and air power, 70, 73, 75
  and air travel, 139
  and national security, 25, 73
  and strategic bombing, 118
  See also Eisenhower; Truman
Priestley, Joseph, 3
Private aircraft, 69, 135
Propaganda
  air delivery of, 59
  Communist, 62–63
  relation to psychological warfare, 61
  techniques, 63
Psychological warfare, 25, 61–63, 66, 88, 89, 115–117, 132

Quemoy, 82
Quesada, Elwood Richard, 74

Radar, 5, 15, 17, 33, 53, 56, 68
Radiation, 6, 7
Railroads, compared with aviation, 134, 136
Rashid Ali al-Gailani, 110
Red Cross, International, 138

Relief and rescue, aviation in, 58, 65, 137, 138
Retaliation and counterattack, 20–21, 26–27, 29, 35, 37, 49, 95, 106, 122, 123, 124, 125
  See also Massive retaliation
Rhodes, Cecil John, 136
Rockets and rocket propulsion, viii, 4, 8, 9, 37, 41, 42, 56, 129
Rommel, Erwin, 110
ROSENZWEIG, LESLIE, *see* Possony, Stefan T., jt. author
Royal Air Force (RAF), 14, 17, 19, 52–53, 54, 104
Ruhr, 14, 96, 98
Russia, 110, 115
  See also Soviet Union

Saber, 50, 52, 53, 56
Santos-Dumont, Alberto, 12
Saudi Arabia, 113, 114
Saundby, Robert, quoted, 22
Scandinavian Airlines System, 137
Schaub, Werner, cited, 11
Schlaifer, R., cited, 47
Slessor, John C., cited, 68, 74
Smuts, Jan Christiaan, 14
Somaliland, 114
Southeast Asia Collective Defense Treaty (Manila Pact), 21, 66, 83, 84, 85, 114
Southeast Asia Treaty Organization (SEATO), 84, 85
Soviet Union
  air attack of, 50, 57, 99, 100, 106, 118
  air power of, viii, 35, 37, 38–48, 56–57, 100, 105 114, 116, 118, 122, 126
  and Middle East, 109, 111, 114–117
  and nuclear disarmament, 15, 102
  commercial airlines, 135
  early nuclear explosions, 19, 67, 70, 120
  engineering and aeronautical schools, 39, 46
  in Spanish Civil War, 32
  initiative in international politics, 24, 49
  nuclear capabilities, viii, 21, 39, 47, 57, 76, 77, 82, 84, 99, 100, 102–103, 107, 118–127 (*passim*)
  superiority in conventional forces and weapons, 21, 99, 100, 102, 103–104, 107–108, 123, 124
Spaatz, Carl A., 74
  cited, 74
Spain, air power and air bases, 35, 55
Spanish-American War, 78
Spanish Civil War, 15, 32, 41, 42
Sparta, 96, 100, 116
Spengler, Oswald, 116
Stalin, Joseph, 42, 47
Strategic air power, 21, 32–37 (*passim*), 49, 53, 54, 60, 74–75, 88–89, 109, 118, 123, 125–126
  and guided missiles, 128–133 (*passim*)
  definition of, 36
  importance of, 17, 19
  in World War II, 16, 17, 32, 96, 104–105
  nuclear weapons in, viii, 17, 21, 27, 36, 57, 89, 95, 99, 100, 114, 121, 124
  Soviet, 43, 57, 100, 123, 126
  See also Air bases
STRAUSZ-HUPÉ, ROBERT, Aviation and International Co-operation, 134–140
STRAUSZ-HUPÉ, ROBERT, Foreword, vii–viii
Strausz-Hupé, Robert, translator, 95
Strughold, H., cited, 7
Submarines, and air-atomic power, 18, 33, 124, 125
Sudan, 114
Sun Tzŭ, 112
Surface forces
  air-atomic defense against, 27, 33, 99, 101, 102, 105, 106, 119, 120, 123, 124, 125
  in European defense, 99, 101, 103–108 (*passim*), 124, 126
  in Korea and Indochina, 21, 104, 113
  in possible U.S.–Chinese war, 79, 82, 83
  integration with air power, 100
  superseded in importance by air power, 13, 14, 16–17, 18, 53
  support of, by air power, 17–18, 19, 21, 33, 34, 41, 43, 45, 51, 68, 69, 75, 105, 106, 107
  U. S. overcommitment of, 127
Sweden, 52, 55, 98
Syria, 110, 112–113, 115, 116

Tactical air power, 18, 19, 32, 33, 34, 53, 68, 69, 75, 88, 109, 114, 120
  and atomic weapons, 21, 102, 105, 121, 124, 126
  and European defense, 102, 104–105, 106, 107–108, 126
  and guided missiles, 131, 132
  Communist, 56, 124
  function of, 21, 33, 37, 105
  in Korean War, 104, 105
  in World War II, 16, 32, 104–105, 106
Talbott, Harold E
  cited, 36
  quoted, 20, 64
Tedder, Arthur William Tedder, 1st Baron, 74
Tenniel, John, 128
Thailand, 83, 84, 86, 100
Thermonuclear weapons, *see* Hydrogen bombs
Thirty Years' War, 96
THOMPSON, LEWIS S., The Psychological Impact of Air Power, 58–66
Tokaev, Grigori A., 41, 47
  cited, 39
  quoted, 39–40, 46, 47

Toynbee, Arnold Joseph, 116
Toynbee, Veronica M., editor, 16
Trade, and aviation, vii, 12, 58, 66, 135, 136, 137, 140
Transport planes (airlift; air logistics), 18, 33–34, 34–35, 42, 50, 51, 53, 54, 64, 65, 68, 69, 70, 75, 113, 119–120, 126
Transportation
  airplane, vii, 10, 31, 58, 64, 134–140
  See also Railroads
Travel and tourism, contribution of aviation to, vii, 64, 135, 136–137, 139–140
  See also Transportation
Trenchard, Hugh Montague 16, 17
Truman, Harry S., 38, 70
TSAGI (USSR), 39, 40, 41, 44, 45
Tupolev, Andrei Nikolaevich, 39, 40, 42, 44, 45
Turkey, 50, 55, 109, 110, 111, 114, 115
Twining, Nathan Farragut, 74

Underdeveloped countries, and aviation, vii, 135–136
United Kingdom, in ANZAM and SEATO, 84
  See also Great Britain
United Nations, 84, 90, 102
  and air travel, 138
  Charter, 80, 86
  in Korea, 21, 79, 80, 85–86, 103, 105
  in Middle East, 111, 113
United States
  aeronautical and engineering training, compared to USSR, 46
  air bases in, 49, 125, 126
  air power
    and collective security, 83–91
    before World War II, 16–17, 30–33
    current, 25–29, 30, 33–37, 49, 50, 51, 67–75, 76–77, 79–80, 81, 83–89, 118–127
    during World War II, 17, 33, 34
    organization of, 18–22, 68–70
    See also United States Air Force
  and Europe, differing attitudes on military strategy, 95–101
  and Middle East, 116–117
  commercial aviation, 31, 69, 134, 135, 137
  contributions to NATO, 50, 51
  defense of, *see* Defense—Western Hemisphere
  economy and institutions, preservation of, 28, 120
  military philosophy, 28, 127
  mobilization base, 106, 120–121
  nuclear capabilities, vii, 21, 25, 26, 30, 49, 76, 79, 81, 82, 87, 88, 89, 98, 102–103, 104, 107, 118–127 (*passim*)
  objectives in psychological warfare, 61, 66
  percentage of world population, 90
  private aircraft in, 69, 135
  surface forces
    overcommitment of, 127
    public attitude toward, 79, 82, 83, 99
  See also Army; Congress; Department of Defense; Foreign policy; Marine Corps; Massive retaliation; President
United States Air Force (USAF), 25, 27, 29, 56, 81
  Air Defense Command, *see below* Continental Air Defense Command
  Alaskan Air Command, 20
  Caribbean Air Command, 65
  Chief of Staff, 19
  Continental Air Defense Command, 33, 34, 68–69, 74, 75
  development program for, 70–71, 73
  Far East Air Forces, 65
  functions of, 19, 35, 67–70
  good-will tour of Latin America, 64–65
  inadequate representation of, 19–20
  Northeast Air Command, 20
  obstacles to development of, 19–20, 70, 71–75
  rescue and disaster relief, 65
  Secretary, 19
  Strategic Air Command (SAC), 19, 21, 33, 34, 49, 50, 54, 68, 74, 75, 106, 118, 119, 121, 123, 126
  strategy, 25–29, 35, 118
  Tactical Air Command, 33, 69, 75, 121, 123
  See also Military Air Transport Service
Urban communities
  bombing of, 12, 17, 22, 34, 36, 38, 79, 95–99 (*passim*), 101, 118, 123, 124
  dispersal of, viii, 22, 65, 121–122
  European and American attitudes toward, 98

V-weapons, *see* Guided missiles—V-weapons
Vance Committee Report, 121
Vandenberg, Hoyt Sanford, 73, 74
  quoted, 45
Versailles, Treaty of, 15, 40
Vershinin, Konstantin, 47
Vietminh, 81, 104
Vietnam, 80–82, 83, 114, 115
Vinson, Carl, 73
Visibility, relation to altitude and speed, 5–6
Voznesensky, Nikolai A., 47

WALKOWICZ, T. F., Strategic Concepts for the Nuclear Age, 118–127
Weather
  and jet streams, 2
  effect on flying, 1, 129
Wells, H. G., quoted, 12–13
Western Europe
  attitude toward air-atomic power, 95–101
  defense of, 27, 97–101, 102–108, 123–124, 126–127

Western Europe (*cont.*)
  industrial power, 90
  See also North Atlantic Treaty Organization; World War I; World War II; *and names of countries, as* France; Great Britain
Weyland, Otto P., 74
White, Clayton S., cited, 11
WHITE, THOMAS D., The Scope of United States Air Strategy, 25–29
White, Thomas D., quoted, 38
Wilson, Gil Robb, cited, 19
World War I, 96, 110, 120
  air power in, 12, 13–14, 17, 22, 30–31, 33–34, 59
World War II, 30, 93, 110, 111, 115, 120, 123, 125, 126
  air power in, 11, 12, 16, 17, 18, 23, 30, 32–34, 36, 41, 42–43, 45, 51, 52, 53, 59–60, 74, 95, 96, 97, 104–105, 106, 120, 131, 132
  books on, by commanders, 74
  V-weapons in, 17, 128–129, 132
World War III, 20, 21, 22, 24, 81, 106, 120

Yakovlev, Aleksander S., 45–46

Zeppelins, 13–14
Zhukovsky, Nikolai Y., 39, 40
Zhukovsky Air Academy, 39–40